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EASTERN INDONESIA

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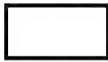
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CONTENTS

	<u>Page</u>
Foreword.....	xv
I. Introduction.....	1
II. Historical Background.....	3
A. Chronology.....	3
B. History.....	4
III. Physical Geography.....	9
A. General.....	9
1. Terrain and Drainage.....	9
2. Climate.....	10
3. Vegetation.....	14
a. Casuarina Trees.....	14
b. Saline Swamp Forests.....	16
c. Freshwater Swamp Forests.....	16
d. Dryland Evergreen Forests.....	16
e. Dryland Deciduous Forests.....	21
f. Mossy Forests.....	24
g. Secondary Forests.....	24
h. Grasslands and Savannas.....	24
i. Cogon Grass.....	27
j. Cultivated Land.....	27
B. Celebes (Sulawesi) and Associated Islands.....	30
1. Celebes.....	30
a. Terrain.....	31
b. Drainage.....	33
c. Vegetation.....	33
d. Coasts.....	34
e. 	34
2. Associated Islands.....	34
a. Sangihe - Talaud Archipelago..	34
b. Penju Islands.....	40
c. Banggai Islands.....	40
d. Wowoni.....	40
e. Butung.....	41
f. Muna.....	41
g. Kabaena.....	41
h. Salajar.....	42

S-E-C-R-E-T

	<u>Page</u>
C. Lesser Sundas.....	42
1. General.....	42
a. Physical Features.....	42
25X1 b. [REDACTED].....	44
2. Bali.....	44
3. Lombok.....	48
4. Sumbawa and Associated Islands.....	51
5. Flores and Associated Islands.....	53
6. Solor - Alor Archipelago.....	55
7. Sumba.....	57
8. Timor and Associated Islands.....	59
D. Moluccas.....	61
1. General.....	62
a. Physical Features.....	62
25X1 b. [REDACTED].....	62
2. Halmanera and Associated Islands.....	63
3. Obi Islands.....	68
4. Sula Islands.....	68
5. Buru.....	69
6. Ceram (Seram) and Associated Islands.....	69
7. Ambon Islands.....	71
8. Minor Islands of the Northern Banda Sea.....	73
9. Kai (Ewab) Islands.....	73
10. Aru Islands.....	74
11. Tanimbar Islands.....	74
12. Wetar and Minor Islands of the Southern Banda Sea.....	74
E. West New Guinea (Irian Barat).....	75
1. West New Guinea.....	75
a. Terrain.....	76
1). Central Mountain Range.....	76
2). Meervlakte Depression.....	76
3). Northern Mountains.....	77
4). Northern Coastal Lowlands.....	77
5). Southern Lowlands.....	77
b. Drainage.....	77
c. Vegetation.....	79
d. Coasts.....	79
25X1 e. [REDACTED].....	88
2. Associated Islands.....	89
a. Schouten Islands.....	89
b. Japan.....	91
c. Numfoor.....	91
d. Waigeo.....	91
e. Batanta.....	91
f. Salawati.....	93

S-E-C-R-E-T

	<u>Page</u>
g. Misoö1.....	93
h. Dolak Island (Frederik Hendrik Island) and Komoran.....	93
Reading List.....	94
IV. Population.....	95
A. Introduction.....	95
B. Celebes.....	95
1. General.....	95
2. Movement of Population.....	97
3. Education.....	98
4. Occupations.....	98
5. Dress.....	99
6. Health and Medical Factors.....	100
7. Ethnic Groups [REDACTED] 25X1	100
25X1 [REDACTED].....	100
a. Toradjas.....	100
b. Minahasans.....	109
c. Bugis and Makasarese.....	112
d. Chinese.....	119
e. Minor Ethnic Groups.....	120
C. Lesser Sundas.....	121
1. General.....	121
2. Movement of Population.....	122
3. Social System.....	123
4. Religion.....	127
5. Language.....	134
6. Education.....	135
7. Occupations.....	137
8. Villages and Housing.....	141
9. Dress.....	144
10. Health and Medical Factors.....	145
11. Attitudes and Loyalties.....	148
25X1 12. [REDACTED].....	156
D. Moluccas.....	156
1. General.....	156
2. Movement of Population.....	157
3. Social System.....	160
4. Religion.....	163
5. Language.....	164
6. Education.....	167
7. Occupations.....	167
8. Villages and Housing.....	169
9. Dress.....	171
10. Health and Medical Factors.....	171

S-E-C-R-E-T

	<u>Page</u>
11. ^{25X1} Attitudes and Loyalties.....	171
12. [REDACTED].....	175
E. West New Guinea.....	176
1. General.....	176
2. Movement of Population.....	178
3. Social System.....	179
4. Religion.....	183
5. Language.....	187
6. Education.....	188
7. Occupations.....	189
8. Villages and Housing.....	193
9. Dress.....	194
10. Health and Medical Factors.....	196
11. Attitudes and Loyalties.....	197
25X1 12. [REDACTED].....	201
Reading List.....	203
V. Politics and Government.....	205
A. Current Problems.....	205
B. Structure of Government.....	206
C. Current Administration.....	208
D. Foreign Relations.....	210
E. Political Parties.....	211
F. Influence Groups.....	213
G. Subversion and Insurgency.....	215
1. General.....	215
2. Communist Subversion.....	216
3. Non-Communist Subversive Activity..	217
a. The Kahar Muzakkar Rebellion..	217
b. The Republic of the South	
Moluccas.....	218
c. PRRI/Permesta Rebellion.....	218
4. Papuan Dissidence.....	219
5. The Chinese.....	220
H. Portuguese Timor.....	220
1. Administration.....	220
2. Subversion.....	221
Reading List.....	224

S-E-C-R-E-T

	<u>Page</u>
VI. Economy.....	225
A. General.....	225
B. Mineral Resources.....	225
C. Agriculture.....	226
D. Forestry and Fishing.....	227
E. Industry and Electric Power.....	227
F. Employment and Labor.....	227
G. Foreign Aid.....	228
Reading List.....	229
VII. Transportation.....	231
A. Roads.....	231
B. Trails.....	233
C. Marine Transport.....	248
D. Inland Waterways.....	258
E. Civil Air Transport.....	258
25X1 F. 	260
Reading List.....	262
VIII. Telecommunications.....	263
A. Eastern Indonesia.....	263
1. Introduction.....	263
2. Telephone and Telegraph Facilities and Services.....	263
a. Domestic.....	263
b. International.....	263
3. Broadcasting Facilities and Services.....	264
4. Specialized Networks.....	264
a. Army.....	264
b. Republic of Indonesia National Police (RINP).....	264
c. Maritime.....	264
B. Portuguese Timor.....	269
1. Telecommunications Facilities and Services.....	269
2. Telecommunications Targets.....	269
Reading List.....	270

S-E-C-R-E-T

S-E-C-R-E-T

	<u>Page</u>
IX. Military and Internal Security Forces.....	271
A. General.....	271
B. Army (ADRI).....	274
C. Air Force (AURI).....	275
D. Navy (ALRI).....	276
E. Police (AKRI).....	278
1. General.....	278
2. Mobile Brigade (BriMob)	279
3. Sea Police (BKP).....	280
4. Air Police.....	280
25X1	
F. 	281 281 282
G. Portuguese Timor.....	283
Reading List.....	284
X. Survival Factors.....	285
A. Food and Water.....	285
1. Plants.....	285
2. Animals.....	299
3. Water.....	300
B. Environmental Hazards.....	301
1. Large Animals.....	301
2. Reptiles and Fish.....	301
C. Climatic Hazards.....	306
1. Temperature and Humidity.....	306
2. Precipitation.....	307
D. Cultural Factors.....	307
E. Medical Factors.....	309
F. Principal Diseases in Eastern Indonesia.	310
Reading List.....	314

S-E-C-R-E-T

	<u>Page</u>
<u>Appendixes</u>	
Appendix A -- Major Airfields - Eastern Indonesia...	315
Major Airfields - Portuguese Timor....	318
Minor Airfields and Air Facilities	
Sites - Eastern Indonesia.....	319
Minor Airfields - Portuguese Timor....	330
Seaplane Stations - Eastern Indonesia.	330
Seaplane Stations - Portuguese Timor..	331
Appendix B -- Recommended Maps.....	333
Appendix C -- Recommended Films.....	335

<u>Tables</u>	
Table 1 -- Eastern Indonesia - Mean Daily Maximum and Minimum Temperatures.....	11
Table 2 -- Eastern Indonesia - Mean Monthly Precip- itation.....	12

	<u>Maps</u>	<u>Following Page</u>
51156 Eastern Indonesia:	Terrain Regions	94
51157 Eastern Indonesia:	Vegetation	94
51158 Eastern Indonesia:	Population and Ethnic Groups	204
51161 Indonesia and Portuguese Timor:	Principal Tele- communication Facilities	270
53138 Eastern Indonesia:	Airfields and Seaplane Stations	331
51160 Eastern Indonesia	(General, Economic Activity, and Administrative Divisions)	335

S-E-C-R-E-T

S-E-C-R-E-T

Photographs
(Abbreviated Titles)

<u>Figure No.</u>		<u>Page</u>
1	Casuarina trees.....	15
2	Saline swamp forest (mangrove).....	17
3	Saline swamp forest (mangrove).....	18
4	Saline swamp forest (nipa).....	19
5	Freshwater swamp forest.....	20
6	Dryland evergreen forest.....	22
7	Dryland evergreen forest.....	23
8	Dryland deciduous forest.....	25
9	Mossy forest.....	26
10	Savanna.....	28
11	Grasslands.....	29
12	Cogon grass.....	29
13 & 14	Volcanic terrain in northern Celebes.....	35
15	Manado harbor on Celebes.....	36
16	Tondano Lake in northern Celebes.....	36
17	Landscape in southwestern Celebes.....	37
18	Eroded hillside in northern Celebes.....	37
19	Limestone formations in southwestern Celebes.....	38
20 & 21	Beaches on Celebes.....	39
22	Terraced wetland ricefields on Bali.....	45
23	Limestone terrain in southern Bali.....	45
24	Mountain vegetation on Bali.....	47
25	Sparse vegetation in northern Lombok.....	49
26	Terraced ricefield in central Lombok.....	49
27 & 28	Coastline of Lombok.....	50
29	Cultivated plain in eastern Sumbawa.....	52
30	Intensively cultivated area of Sumbawa...	52
31	Main east-west road in eastern Flores....	54
32	Volcanic terrain in central Flores.....	54
33 & 34	Kupang harbor, Indonesian Timor.....	58
35	Interior Indonesian Timor.....	60
36	Populated area of Morotai.....	64
37 & 38	Ternate shoreline.....	66
39	Coastal village on Buru.....	70
40	Coastline of Ceram.....	70
41	Heavy woods on Amboina.....	72
42	Cultivated area of Amboina.....	72
43	Lowland stream of Vogelkop, West Irian...	80
44	North coast of West Irian.....	81
45	Reef-fringed bay of West Irian.....	82
46	Baliem Valley in West Irian.....	82
47	Forested mountains of West Irian.....	83
48 & 49	Mountain streams of West Irian.....	84

S-E-C-R-E-T

<u>Figure No.</u>		<u>Page</u>
50	Upper Baliem Valley.....	85
51	Alpine terrain in West Irian.....	86
52	Village in lowlands of West Irian.....	86
53 & 54	South coast of West Irian.....	87
55	Caves on Biak.....	90
56	Coast of southern Japen.....	90
57	Coastline of Frederik Hendrik Island.....	92
58	Toradja village.....	104
59	Toradja house.....	105
60	Toradja youth.....	106
61	Toradja girl.....	107
62	Minahasans of northern Celebes.....	111
63	Minahasan children.....	111
64	Bugi dwelling in southwestern Celebes....	115
65	Bugi girl in everyday attire.....	115
66 & 67	Makasarese houses in Celebes.....	116
68	Makasarese couple in ceremonial dress....	117
69	Makasarese man and child.....	117
70	Balinese fishing village.....	124
71	Balinese village temple.....	124
72	Terraced ricefields of Bali.....	125
73	Balinese fishing boat.....	125
74	Young Balinese man.....	128
75	Old Hindu Balinese man.....	128
76	Balinese girls.....	129
77	Young Balinese dancer.....	129
78	Cremation ceremony on Bali.....	129
79	Main street of Lombok.....	132
80	Native Lombok women.....	132
81	Sasak people of Lombok.....	133
82	Typical village on Sumbawa.....	133
83	Girls of Sumbawa.....	136
84	Sumbawan couple in ceremonial attire.....	136
85	Native houses on Sumba.....	138
86	Sawunese couple on Sumba.....	138
87	Man in native attire on Sumba.....	139
88	Girls in ceremonial attire on Sumba.....	139
89	Farmers on Flores.....	142
90	Men on Flores.....	143
91	Women dancers on Flores.....	143
92	Lomblen fishing village.....	146
93	Native sailboat from Alor.....	146
94	Alorese tribal chief.....	147
95	Natives of Alor.....	147
96	Houses in Indonesian Timor.....	150
97	Family settlement on Indonesian Timor....	150
98	Packhorses on Indonesian Timor.....	151

S-E-C-R-E-T

<u>Figure No.</u>		<u>Page</u>
99	Men of Indonesian Timor.....	151
100	Man in traditional attire on Indonesian Timor.....	154
101	Man of Portuguese Timor.....	155
102	Woman of Portuguese Timor.....	155
103	Men of Gebe and Pattani Islands.....	159
104	Women from Gebe Island.....	159
105	Fishermen on Buru.....	162
106	Native girls on Buru.....	162
107	Houses in port area of Amboina.....	165
108	Ambonese fishermen.....	165
109	Ambonese youths.....	166
110	Ambonese women dancing.....	166
111	Natives of Jamdena Island.....	170
112	Woman of Tanimbar wearing ceremonial attire.....	170
113	Women of Moa Island.....	172
114	Housing on north coast of West Irian.....	180
115	Village in Southern Lowlands of West Irian.....	181
116	Mountain village in West Irian.....	185
117	Highland village in West Irian.....	186
118	Highland hut in West Irian.....	186
119	Native of Southern Lowlands of West Irian.....	190
120 & 121	Mountain natives of West Irian.....	191
122	Natives of Baliem Valley.....	195
123	Mountain men of West Irian.....	195
124	West Irian man with stone axe.....	198
125	Papuan man with facial adornments.....	200
126	Switchback road on Celebes.....	234
127	Coastal highway on Celebes.....	235
128	Bridge on Celebes.....	236
129	Ferry crossing on Celebes.....	236
130 & 131	Main road on Sumbawa.....	237
132 & 133	Main east-west road on Flores.....	238
134 & 135	Bridges on main east-west road on Flores.	239
136 & 137	Covered bridges on Flores.....	240
138 - 140	Major road on Indonesian Timor.....	241
141 - 143	Bridges between Indonesian and Portuguese Timor.....	242
144	Dry river bed in Indonesian Timor.....	243
145	Truck mired in river bed, Indonesian Timor.....	244
146	Road near Amboina.....	244
147 & 148	Road construction in Vogelkop Peninsula..	245

S-E-C-R-E-T

<u>Figure No.</u>		<u>Page</u>
149	Bamboo footbridge on Celebes.....	246
150 & 151	Two footbridges in West Irian.....	247
152	Port of Bitung, Celebes.....	251
153	Harbor construction at Tenau, Indonesian Timor.....	251
154	Port of Makasar, Celebes.....	256
155	Sorong harbor, West Irian.....	256
156 & 157	Pier in Ternate harbor.....	257
158	Highland river in West Irian.....	259
159	Canoes on lowland river, West Irian.....	259
160	Main transmitter, Sukarnapura.....	266
161	Transmission lines, Sukarnapura.....	266
162	Transmitter station in southwest Amboina.	267
163	Military antenna farm on Biak.....	267
164	Wireline on Indonesian Timor.....	268
165	Radiotelegraph station on Portuguese Timor.....	268
166	Plantain.....	286
167	Bignay.....	287
168	Breadfruit.....	288
169	Bamboo.....	289
170	Coconut.....	290
171	Nipa palm.....	291
172	Rattan palm.....	292
173	Sugar palm.....	293
174	Sago palm.....	294
175	Edible ferns.....	295
176	East Indian arrowroot.....	296
177	Taro.....	297
178	Tropical yam.....	298
179	Obtaining water from tropical vine.....	302
180 - 183	Poisonous fish.....	304
184 & 185	Poisonous fish.....	305

S-E-C-R-E-T

S-E-C-R-E-T

FOREWORD

25X1

The NIS General Survey, Indonesia, May 1966 was used extensively in preparation of the Chronology and Chapters V and IX (Politics and Government, and Military and Internal Security Forces); it and other NIS chapters should be referred to for additional background information. For NIS chapters available, see the NIS Production Status Report.

For purposes of this Handbook, Eastern Indonesia includes Bali, the Lesser Sundas (including Portuguese Timor), Celebes, the Moluccas, and West New Guinea. The terms West New Guinea, West Irian, and Irian Barat are used interchangeably.

The cutoff date for material contained in the Handbook is 31 October 1966.

S-E-C-R-E-T

S-E-C-R-E-T

I. Introduction

Eastern Indonesia, which includes the island areas of Celebes, the Lesser Sundas, the Moluccas, and West Irian has an area of 296,000 square miles and a population of about 14,600,000. It comprises approximately 40 percent of Indonesia's land area, but only about 15 percent of its population. However, over half the land area of Eastern Indonesia is in West Irian, one of the world's most inhospitable and undeveloped regions. Unlike other geographic regions of the Indonesian Republic, Eastern Indonesia has few mineral industries or agricultural resources. Its people make their living by cultivating small food crops and fishing, and by the export of a few key products such as copra and spices. Natural disasters, such as volcanic eruptions or lack of rainfall, can quickly result in famine in some areas, as the paucity of transportation hinders the distribution of food reserves to stricken areas.

Although a sense of national identity has spread throughout the area, the political issues and national campaigns which have preoccupied attention in other parts of Indonesia have seemed remote from the everyday experiences of most residents in Eastern Indonesia. With the notable exception of Bali and scattered population centers such as Makasar and Amboina, the islands were relatively unaffected by the events following from the abortive leftist coup attempt in Djakarta in October 1965. In most areas military commanders had been acting as top provincial administrators before that date, and their powers were expanded to virtual martial law authority soon after. The Indonesian Communist Party was proscribed in most of the area during November and December 1965, preceding its nation-wide ban in March 1966. The PKI was strong only on Bali, which suffered greatly from the internecine fighting between political groups in November and December 1965.

Guerrilla activity, intermittent in southern Celebes and Ceram since 1950, had virtually ceased by 1965 due to the attrition among rebel leaders and to counterinsurgency operations by the central government. Regional economic grievances and anti-Javanese resentment remain strong in the area, but a resurgence of dissident activity is hampered by the area's geographic dispersion and the greater resources in men and materiel commanded by the central government.

S-E-C-R-E-T

S-E-C-R-E-T

The army is the dominant administrative organ in Indonesia, stemming from its long determination to prevent national fragmentation and from its preeminence in the national leadership since March 1966. There is a nominal appearance of popular participation in government, but holders of key positions in the provinces are appointed by the central government and are chiefly military men. Public opinion in much of the area of Eastern Indonesia has been disenfranchised since 1960 when the Masjumi, the major political party of that area, was banned. Although the Masjumi and other banned parties may be allowed to reorganize - possibly under new names - the army will continue for some time to define the latitude of political party activity in the interests of stable government.

S-E-C-R-E-T

S-E-C-R-E-T

II. Historical Background

A. Chronology

- 1511 Portuguese captured Malacca, major spice market of Southeast Asia, and from this base established a thin garrison empire throughout the Moluccas and Timor.
- 1596 First Dutch expedition reached western Java (Bantam), followed quickly by successive expeditions to eastern Indonesian islands.
- 1602 United East India Company (Dutch) formed; main headquarters established at Amboina.
- 1619 Dutch established main base at Batavia (Djakarta).
- 1826 Dutch declared their sovereignty to extend to 141st meridian in New Guinea.
- 1904 Treaty between Dutch and Portuguese set present boundaries on Timor.
- 1945 Declaration of Indonesian independence by Republican Government on 17 August.
- 1946 State of East Indonesia (capital at Makasar) was established by the Dutch; comprised the Lesser Sunda Islands, Celebes, and the Moluccas.
- 1949 Dutch sovereignty transferred to the federal Republic of United States of Indonesia (RUSI); Dutch retained control of West New Guinea.
- 1950 Republic of Indonesia, a unitary state, established by the dissolution of the federal state system; dissident movements began in the Moluccas and in southern Celebes.
- 1958 PRRI/Permesta rebellion broke out in parts of Sumatra and Celebes.
- 1959 The Constitution of 1945, which centralized power in the executive and reduced legislatures to rubber stamps, was reinstated.
- 1961 PRRI/Permesta rebellion ended with surrender of major rebel forces.

S-E-C-R-E-T

S-E-C-R-E-T

- 1963 West New Guinea transferred to Indonesian administration after brief UN trusteeship, with proviso that expression of self-determination be granted to Papuan population before end of 1969.
- 1963 Formation of Malaysia, against Indonesian objections, marked by break in diplomatic and economic relations between two nations and beginning of anti-Malaysia campaign by Indonesia.
- 1963-65 Intensified anti-dissident operations in Eastern Indonesia resulted in death of chief dissident leaders in southern Celebes and Moluccas.
- 1965 Indonesia withdrew from United Nations in January and espoused increasingly leftist domestic and foreign policies. In October, leftist forces including elements of the Indonesian Communist Party (PKI) attempted a coup. Army-led reaction severely repressed the Communists, and led to increased army power at expense of Sukarno and resurgence of non-Communist elements in Indonesia.
- 1966 Following nearly four months of political stalemate, army took de facto control of government in March and formed a cabinet controlled by army and its civilian supporters. PKI officially banned in March. Legislative action in June and a cabinet reorganization in July further reduced Sukarno's powers to that of titular chief of state. End to anti-Malaysian hostilities negotiated in August, and in September Indonesia re-entered the UN.

B. History

The early history of the Indonesian islands is dominated by the powerful kingdoms of Sumatra and Java which were located on or near vital sea lanes connecting the China Sea and the Indian Ocean. Along these waterways moved the lucrative trade of the Orient, exchanging Chinese and Indian textiles and other manufactures for the aromatic woods, spices, ivory, and metals of the southeast Asian countries. Hindu, Buddhist, and Islamic cultural influences were widely diffused through the port areas of the Indonesian islands via these trading channels; the interiors of most of the islands remained largely untouched. The eastern

S-E-C-R-E-T

islands, most of them sparsely populated and widely dispersed, rarely formed important political units in their own right.

The local sultans in the eastern islands who organized the production and sale of the spices and woods were treated as important satellites by the Javanese kings who, from the 9th century until the arrival of western commercial interests in the 16th century, extended their influence from Bali eastward. Javanese domination was never complete, however, and within the area minor kingdoms established hegemony over nearby islands, leaving an ingrained attitude of resentment and suspicion of alien rule on the part of the subject populations. The Buginese and Makasarese kingdoms of southern Celebes, and the sultanates of Bali, Ternate, and Tidore were the most prominent of these realms, frequently under Javanese overlordship.

Domination of the rich spice trade was the target of European merchants, causing western explorers under the flags of Spain and Portugal to seek new routes to the orient in the 15th and 16th centuries. In the process, they discovered new continents and ushered in four and a half centuries of European dominance in Southeast Asia. Rivalry among local rulers and minor nobles of Eastern Indonesia, and their general resistance to Javanese domination, were exploited by the westerners to expand their economic interests. For more than a hundred years (roughly 1520 to 1650), the Moluccas and Celebes were the centers of European activity in the East Indies. The Portuguese, Spanish, Dutch, and British engaged in bitter rivalry for commercial control of the important port towns of Ternate, Tidore, Amboina, Makasar, and Manado. By the middle of the 17th century, Dutch primacy had been established, British and Spanish interests had been driven out, and Portuguese holdings confined to Timor. Regarding their activity as a commercial venture only, the Dutch East India Company, established in 1602, dealt with native rulers who continued to administer their realms. The company's restrictive commercial policies in the eastern islands, however, had largely destroyed indigenous commerce by the end of the 18th century when the Company was dissolved (1798). From the mid-1800's onward, more liberal trade policies were instituted and the economy of the eastern territories gradually revived under the growing world demand for copra, which thereafter became their principal export commodity.

Direct administrative control by the Dutch colonial government in Eastern Indonesia increased in the 19th

S-E-C-R-E-T

S-E-C-R-E-T

century, and was highlighted by local wars of resistance by the native rulers. Much of northern Bali, Lombok, south-west and northeast Celebes, and various parts of the Moluccas had been brought under formal Dutch administration by 1898, but the remoter interiors of Celebes, the Moluccas, and nearly all of the Lesser Sundas from Sumbawa east were not directly ruled until the first decade of the 20th century. The main lowland of Bali was among the last area to be occupied and only came under Dutch rule in 1908 following protracted resistance which ended with the mass suicide of some of the ruling princes and their families. The international boundaries of West New Guinea and Timor were defined in 1904 and 1908, respectively. Practically the whole interior of West New Guinea remained unknown land until the 1930's, and at the time of World War II Dutch rule was scarcely more than nominal over most of this region a few miles inland from the coast.

Following the declaration of Indonesian independence and the establishment of a republican government on Java in August 1945, many of the local leaders in Eastern Indonesia immediately declared for the Republic. The nationalist movement was not well established in the eastern islands, however, as this area during World War II had been under the control of the Japanese navy which suppressed nationalist activity rather than allowing it to develop within bounds as the Japanese army did on Java and Sumatra. The returning Dutch army rather easily re-established control, and arrested and jailed most of the pro-Republican leaders. The State of East Indonesia, with its capital at Makasar, was established by the Dutch in December 1946 comprising Celebes, the Moluccas and the Lesser Sunda Islands. Tenacious resistance to Dutch rule was encountered, however, in southwestern Celebes, where extremely brutal measures were employed in a pacification campaign ending in March 1947, and in Bali, where resistance continued until the middle of 1948. Moreover, the cabinet of the State of East Indonesia resigned in December 1948 in protest against the Dutch attack on the Republic of Indonesia (comprising parts of Java and Sumatra). Following negotiations at The Hague, Dutch sovereignty over the Indonesian islands was passed in December 1949 to the Republic of the United States of Indonesia (RUSI), made up of the Republic of Indonesia and the 15 states created under Dutch auspices. The status of West New Guinea was held in abeyance, under Dutch control, pending further negotiations.

S-E-C-R-E-T

S-E-C-R-E-T

The federal structure of RUSI was abandoned in 1950 as the various states voted to dissolve their separate identities and to merge with the Republic of Indonesia. The movement toward a unitary state, completed by August 1950, resulted in several local rebellions in the area of Eastern Indonesia. Their causes were chiefly the uncertainty of Dutch-sponsored rulers, Dutch-trained military forces, and local political and religious chieftains of their future status under a secular, Javanese-dominated government. Military action by the central government reduced the threat of dissident forces after 1951 in Celebes and Ceram, but guerrilla activities ceased only gradually over the years with the surrender, capture, or death of local leaders.

Indonesia's long quarrel with the Dutch over the status of West New Guinea came to an end in October 1962. The issue had provoked a series of diplomatic and economic reprisals by Indonesia against the Dutch after 1956, culminating in the rupture of official relations in 1960. Massive arms purchases from the Soviet Union and other Communist governments beginning 1960, the build-up of military forces in Eastern Indonesia in 1961-62, and the eventual small-scale intrusion of Indonesian troops into the New Guinea territory increased pressures on the Dutch to negotiate the transfer of the area to Indonesian control. With the US acting as mediator under UN auspices, Dutch-Indonesian negotiations were concluded in mid-1962. After an interim of UN administration, the territory now called Irian Barat (West Irian) was taken over by Indonesia on 1 May 1963 with the UN proviso that Indonesia would conduct a plebiscite before 1 January 1970 to decide its political future. Indonesia's efforts since acquisition have been directed toward consolidating its hold and have resulted in considerable Papuan resentment. The current regime is attempting to ameliorate discontent and to find some formula which would fulfill the requirement for Papuan self-determination without jeopardizing Indonesian control.

President Sukarno, who has been Indonesia's only chief of state since independence in 1949, abandoned parliamentary democracy in effect in 1957 when he personally appointed a non-party cabinet, and in fact in 1959 when he decreed the readoption of Indonesia's first constitution (written in 1945) which specified a presidential system. After taking personal charge of the government in July 1959, Sukarno began to reshape Indonesian institutions to conform with his political concepts, which are the product of an early and continuing attachment to Marxism. From the outset Sukarno's programs

S-E-C-R-E-T

S-E-C-R-E-T

relied heavily, but not exclusively, on the support of the Indonesian Communist Party (PKI) which had the advantage of being closer ideologically to Sukarno's views than other Indonesian parties. Sukarno's tolerance and later support permitted the PKI to become the largest civilian organization in Indonesia by 1965. Sukarno's domestic policies after 1960 were designed to push all political activity toward the left and to oust any potential opposition centers. The policies caused the gradual isolation and demoralization of moderate nationalist and religious groups. By mid-1965, only the army offered resistance -- and that was relatively slight -- to the nation's move into a Sukarnoized version of Communism.

The leftward plunge of Indonesian policies was dramatically arrested by the army's reaction to a leftist coup attempt on 1 October 1965. Communist elements were deeply involved in the abortive coup, and circumstantial evidence also pointed toward some degree of presidential participation. The army concentrated first on a campaign to destroy the PKI, and secondarily on a campaign to restrict Sukarno's virtually unlimited powers. By December 1965 the PKI had been virtually eliminated as a political force and surviving hard-core members had been driven underground. In March 1966 the PKI and its front organizations were formally banned throughout Indonesia by the army in the first exercise of de facto powers forced from Sukarno. Major political power passed to the army and its civilian allies after March 1966. Indonesia's new rulers stated that their goal was the return to constitutional rather than personal government, and to nonalignment in world affairs.

S-E-C-R-E-T

S-E-C-R-E-T

III. Physical GeographyA. General

Eastern Indonesia consists of more than 2,000 islands that range from small rocks exposed at low tide to the large island of Celebes (Sulawesi). They are scattered over an area that is equal to approximately half the size of the continental United States -- from 114°E to 141°E and from 5°N to 11°S. West New Guinea (Irian Barat), with an area of some 160,000 square miles, is the largest single landmass in the study area; the eastern portion of New Guinea is administered by Australia. Celebes, which covers 73,000 square miles, is the second largest landmass of Eastern Indonesia.

1. Terrain and Drainage

For convenience of discussion the islands of Eastern Indonesia are grouped into four regions, although no one type of terrain characterizes each region (see Map 51156 for delimitation of the regions and Map 51160 for additional place names). Most of the islands consist of mountains and hills that are densely forested and sparsely settled. Notable exceptions are Bali, which is densely settled and intensively cultivated, and the other Lesser Sunda Islands, which though sparsely settled, generally have a meager vegetative cover. Many of the islands are of volcanic origin, and the terrain commonly rises steeply from the sea and culminates in peaks of more than 10,000 feet above sea level. Relatively flat areas, on which most of the people live, generally occur only in narrow belts along the coasts and in intermontane basins. The only extensive plains area is the swampy southern lowland of West New Guinea.

In the hilly and mountainous interior regions of most of the islands, drainage is normally characterized by short, swift-flowing streams in narrow valleys or rocky gorges; flash floods are common. Streams that cross plains flow more slowly and in some stretches are navigable by shallow-draft vessels. In the swamps of New Guinea, streams provide the main routes of surface travel. Many streams in the Lesser Sundas are intermittent and characteristically have wide braided courses on the plains. In limestone areas, which are found in many parts of Eastern Indonesia, surface drainage may be lacking over considerable distances, as streams disappear into the porous rock and flow beneath the surface.

The major islands of Eastern Indonesia have highly 25X1 irregular coastlines with numerous sandy beaches

S-E-C-R-E-T

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2. Climate

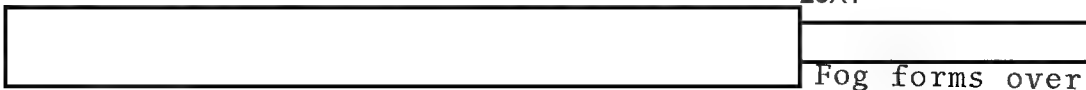
Temperatures are uniformly high and relatively constant throughout Eastern Indonesia (see Table 1). The only appreciable temperature variations result from elevation differences. Temperatures are generally 3 Fahrenheit degrees cooler for every 1,000 foot increase in elevation; permanent snowfields cover areas above 14,000 feet in West New Guinea. The daily range in the lowlands is from the low 70's at night to the high 80's or low 90's in the afternoon. Relative humidity is very high from December through March but in parts of the Lesser Sundas diminishes to less than 50 percent during the dry season.

Most of Eastern Indonesia receives abundant rainfall, but much of the region experiences a definite seasonal variation (see Table 2). From December through February the moist winds that blow from the northwest across Eastern Indonesia bring a pronounced wet season to most islands. Most of the precipitation falls during short but torrential thunderstorms, which normally occur in the early afternoon. Some stations have recorded 20 inches of rainfall in a 24-hour period. From May to October southeasterly winds blow across Eastern Indonesia, producing a marked dry season in the Lesser Sundas, in southern Celebes, and in the islands of the southern Moluccas. This dry season is most pronounced in the easternmost Lesser Sundas. In the northern part of Celebes and in the northern Molucca islands there is no marked seasonal variation in rainfall. There may be, however, a seasonal variation between the northern and southern slopes of individual islands because of their difference in exposure to rain-bearing winds. March-April and October-November are transitional periods between the northwestern and southeastern monsoons.

Eastern Indonesia is not normally affected by typhoons. Tropical storms, however, occasionally brush its northern and southern limits. These storms are characterized by several days of thick clouds and heavy rainfall. Surface winds on such occasions are seldom destructive.

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Table 1

Eastern Indonesia
Mean Daily Maximum and Minimum Temperatures

Island, Station		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Degrees Fahrenheit	
														Annual	Yrs Rec
Amboina															
Amboina															
(3°43'S-128°12'E)	Max	88	88	88	86	84	82	81	81	83	85	87	88	85	21
	Min	76	76	76	75	75	74	73	73	74	74	75	76	75	21
Celebes															
Makassar															
(5°07'S-119°24'E)	Max	84	84	85	86	87	86	86	87	87	87	86	84	86	11
	Min	75	75	74	74	74	72	70	69	70	72	74	74	73	11
Manado															
(1°29'N-124°51'E)	Max	85	85	85	86	87	87	87	89	89	89	87	86	87	21
	Min	73	73	73	73	74	73	73	73	73	72	73	74	73	21
Tomohon															
(1°19'N-124°49'E)	Max	76	76	78	79	80	79	79	80	80	80	80	77	78	13
	Min	65	65	65	64	65	65	65	64	63	64	64	65	65	13
New Guinea															
Atubi															
(2°22'S-138°05'E)	Max	87	91	89	89	89	89	87	87	88	89	90	89	89	2
	Min	74	75	73	74	74	74	73	73	73	73	74	74	74	2
Manokwari															
(0°52'S-134°05'E)	Max	86	86	86	86	86	85	86	85	87	87	88	86	86	5
	Min	73	73	74	74	74	74	74	75	74	74	74	75	74	5
Merauke															
(8°28'S-140°20'E)	Max	89	88	88	87	86	84	82	82	83	86	87	89	86	a
	Min	76	78	77	75	76	75	72	70	72	71	74	74	74	a
Prauwentivak															
(3°15'S-138°35'E)	Max	84	85	87	85	87	88	88	89	87	87	89	87	87	2
	Min	75	74	75	74	75	75	75	74	73	74	74	74	74	2
Sangihe															
Tahuna															
(3°37'N-125°29'E)	Max	88	88	88	88	89	88	88	88	88	89	90	88	88	a
	Min	71	71	71	72	72	72	72	72	72	72	72	72	72	a
Timor															
Kupang															
(10°10'S-123°35'E)	Max	87	87	87	89	89	88	88	89	91	92	92	88	89	21
	Min	75	75	74	72	72	71	70	70	71	72	74	75	73	21

a. Data not available.

-11-

S-E-C-R-E-T

S-E-C-R-E-T

Table 2

Eastern Indonesia

Mean Monthly Precipitation

Island, Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Inches Yrs Rec
Amboina														
Amboina (3°43'S-128°12'E)	5.0	4.6	5.3	11.1	20.8	25.0	23.5	16.4	9.4	6.2	4.3	5.1	136.8	63
Aru														
Dobo (5°46'S-134°13'E)	11.3	10.7	9.5	8.4	7.3	6.8	4.6	3.0	2.8	4.8	6.6	9.8	85.7	44
Celebes														
Borongroppo														
(5°23'S-120°01'E)	14.4	13.9	16.1	17.2	25.2	23.3	13.4	6.8	2.3	2.0	5.3	13.8	153.8	17
Kendari														
(3°57'S-122°35'E)	7.2	7.0	7.8	7.1	8.2	7.6	4.7	2.4	1.1	0.7	2.7	6.7	63.0	33
Makasar														
(3°07'S-119°24'E)	28.3	20.9	16.7	6.5	3.6	2.7	1.3	0.4	0.5	1.6	6.8	23.2	112.6	63
Manado														
(1°29'N-124°51'E)	18.6	13.8	12.2	8.0	6.4	6.5	4.8	4.0	3.3	4.9	8.9	14.7	106.2	63
Paleleh														
(1°04'N-121°56'E)	14.0	14.3	11.1	8.4	8.5	7.9	7.5	6.1	5.5	5.7	11.1	11.5	111.7	40
Palu														
(0°53'S-119°53'E)	1.8	1.5	1.5	1.9	1.9	2.5	1.8	2.0	1.8	1.3	1.8	1.6	21.5	33
Pendolo														
(2°05'S-120°42'E)	14.7	14.2	20.6	24.6	17.7	11.5	7.7	5.3	5.1	7.2	12.6	17.1	197.2	29
Flores														
Ruteng														
(8°36'S-120°27'E)	16.4	17.0	18.9	14.8	8.1	5.0	3.7	3.0	4.4	9.0	14.8	17.0	132.0	26
Lombok														
Praja														
(8°42'S-116°17'E)	11.0	9.8	8.4	6.2	4.3	2.3	1.7	1.2	0.9	3.0	6.5	12.6	67.8	28
New Guinea														
Atinjoe														
(P 25'S-132°03'E)	15.1	10.7	11.5	18.4	30.0	24.0	14.1	17.2	17.1	8.2	9.6	15.2	190.9	6
Atubi (2°22'S - 138°05'E)	9.8	9.9	14.3	10.8	11.5	10.0	14.3	9.6	11.4	8.3	11.8	8.8	130.5	7
Kaimana														
(3°39'S-133°45'E)	6.6	8.2	10.0	13.4	10.6	7.4	5.8	4.4	4.7	5.7	7.2	8.0	91.9	27
Manokwari														
(0°52'S-134°05'E)	12.0	9.4	13.2	11.1	7.8	7.2	5.4	5.6	4.9	4.7	6.5	10.3	94.1	40
Merauke														
(8°28'S-140°20'E)	10.3	9.0	10.0	7.2	4.9	1.7	1.3	0.7	1.1	1.6	3.0	7.4	58.3	40

-12-

S-E-C-R-E-T

S-E-C-R-E-T

Table 2 (Cont.)

Island, Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	In inches Yrs Rec
Nienatie (5°42'S-140°53'E)	23.6	13.9	17.6	23.4	30.5	23.0	23.0	17.2	26.7	14.0	18.1	18.7	249.7	6
Sorong (0°55'S-131°15'E)	7.2	6.6	8.0	9.6	12.4	13.4	13.1	9.7	10.3	8.1	6.9	7.0	112.2	36
Sukarnapura (2°32'S-140°42'E)	12.5	11.7	11.2	9.1	8.0	6.1	6.6	6.5	5.4	6.4	7.4	8.5	99.3	24
Sangihe Tahuna (3°37'N-125°29'E)	19.0	14.2	13.4	12.6	13.2	12.2	11.4	8.2	8.0	9.7	15.2	17.7	154.8	45
Sawu Seba (10°29'S-121°50'E)	8.0	8.6	7.2	1.9	0.7	0.6	0.7	0.0	a	0.2	2.8	7.0	37.8	22
Sula Sanana (2°04'S-125°58'E)	4.8	4.2	5.4	8.8	11.6	8.7	6.4	3.1	3.3	2.4	3.8	5.2	67.7	24
Sumbawa Bima (8°28'S-118°43'E)	8.8	8.0	7.4	5.6	2.4	1.6	0.7	0.5	0.5	1.6	5.0	8.7	50.6	61
Tanimbar Saumlakki (7°57'S-131°19'E)	13.2	8.8	9.4	11.2	12.1	6.7	3.2	0.6	0.2	0.8	2.0	8.6	76.8	30
Ternate Ternate (0°48'N-127°24'E)	8.3	7.2	7.6	9.3	10.2	8.3	5.3	4.1	4.4	5.3	8.0	9.1	87.0	63
Timor Atambua (9°07'S-124°54'E)	11.3	9.3	10.6	4.3	1.8	1.3	0.7	0.2	0.4	1.4	5.3	9.2	55.8	22
Kupang (10°10'S-123°35'E)	15.2	13.7	9.2	2.6	1.2	0.4	0.2	a	a	0.7	3.3	9.1	55.6	63

a. Less than 0.05 inch.

-13-

S-E-C-R-E-T

S-E-C-R-E-T

swampy valleys and upland basins during the night but usually disperses by 0900. Tall cloudbanks develop in the morning but usually dissipate following afternoon thunderstorms. Normally, clear weather prevails from 1400 until nightfall. Over the sea, cloudiness and thunderstorms occur most commonly at night. Most areas experience a maximum number of clear days during the southeast monsoon. The southern islands of the study area are an exception. Here, the southeast monsoon frequently brings a dry haze composed of salt particles from the sea, smoke from brush fires, and dust from Australia that gives a bluish or whitish tint to the air and reduces visibility. As the dry season progresses the haze becomes denser; it is usually densest in areas between 3,000 and 6,000 feet above sea level. In unusually dry years it has extended as far west and north as Singapore and northern Borneo. The rains of the transitional season usually dissipate the haze.

25X1



3. Vegetation

Most of the islands of Eastern Indonesia have extensive forested areas, but the type of vegetation varies from place to place, being strongly influenced by the annual distribution of rainfall and by elevation above sea level. Deciduous forests and open grasslands predominate only in the eastern Lesser Sundas, where a pronounced dry season is experienced. Tropical evergreen forests prevail throughout the rest of the region.



25X1

a. Casuarina Trees

Along the coasts, sandy shores often support pure stands of casuarina trees, usually in groves less than 100 yards wide. The trees are generally spaced 10 to 20

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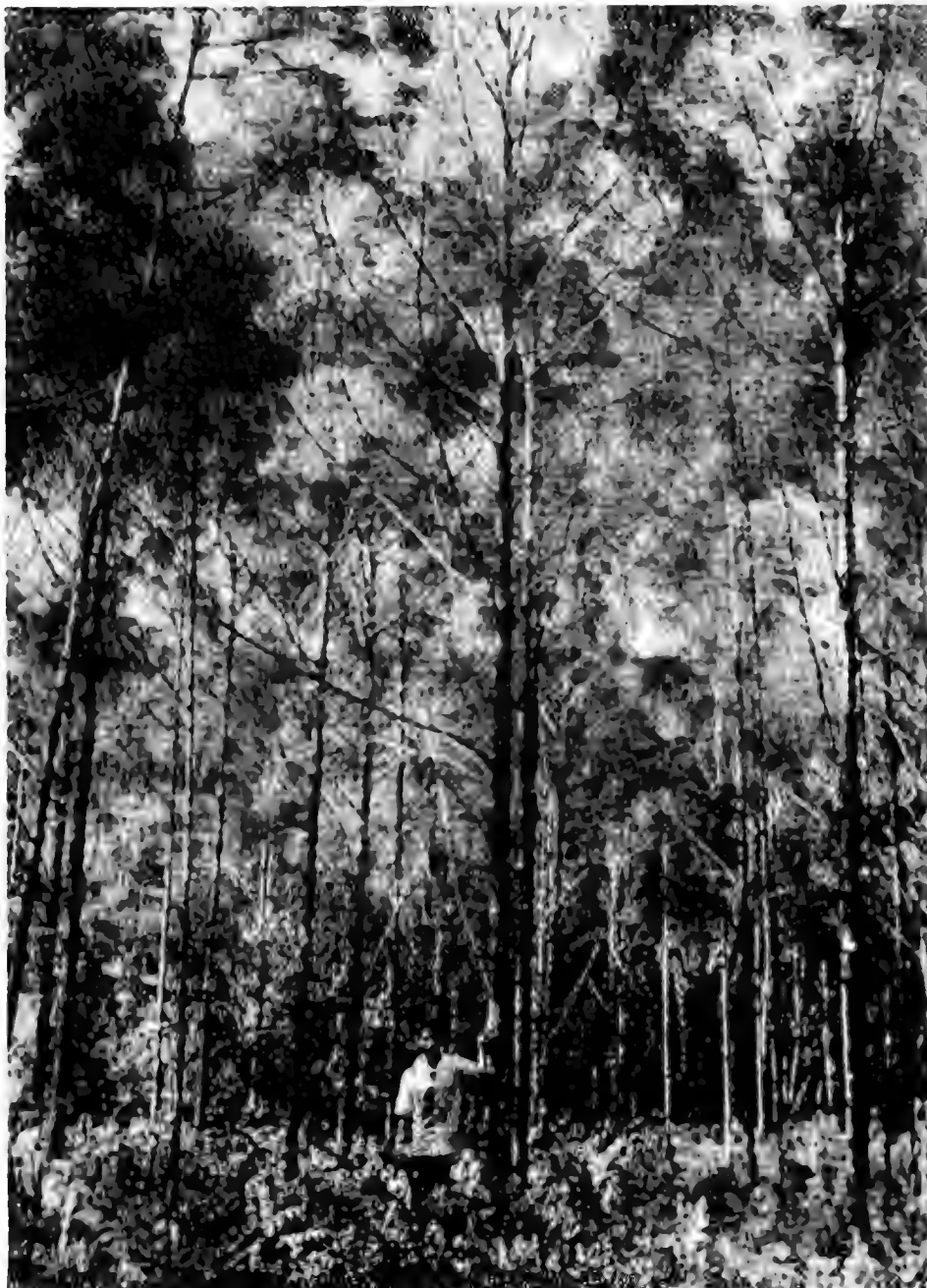


Figure 1. Casuarina trees.

S-E-C-R-E-T

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feet apart and have trunks up to a foot in diameter. Casuarina trees seldom exceed 100 feet in height. The canopy is continuous but sparse, and undergrowth (usually shrubs 3 to 4 feet high) is spotty.

25X1

b. Saline Swamp Forests

Saline swamp forests occur in scattered coastal areas and extend upriver as far as the tide makes the water brackish. The seaward portions of such forests consist of mangrove of various types. Trees in mangrove swamps produce a dense canopy, often not exceeding 10 feet in height. The trees are spaced 4 to 10 feet apart and have trunks 1 to 2 feet in diameter. There is no undergrowth, but dense aerial roots present conditions comparable to dense undergrowth. Nipa palms commonly grow in pure stands along the landward margins of brackish rivers. The nipa palm has a horizontal trunk buried in the mud, from which closely spaced fronds grow vertically to heights of 20 feet. Their interlocking leaves form a thin canopy.

25X1

c. Freshwater Swamp Forests

Freshwater swamp forests are found along some rivers and in poorly drained inland areas. They normally have a dense canopy, with the tallest trees reaching 150 feet. The diameter of the trunks of the largest trees is about 4 feet. Root systems up to 2 feet high may extend ribbonlike as far as 20 feet along the ground out from the trunk. The distance between individual trees averages 10 feet. Undergrowth is very dense and usually consists of palms, tall ferns, thorny vines, and various herbaceous plants. The sandy natural levees of the larger rivers that cross these swamps are covered by dense growths of large trees, palms, bamboo, wild sugarcane, and vines; frequently they provide the only available dry ground.

25X1

d. Dryland Evergreen Forests

Dryland evergreen forests predominate on most of Celebes, the Moluccas, and West New Guinea but cover only 15 percent



Figure 2. Saline swamp forest (Mangrove).

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Figure 3. Saline swamp forest (Mangrove).

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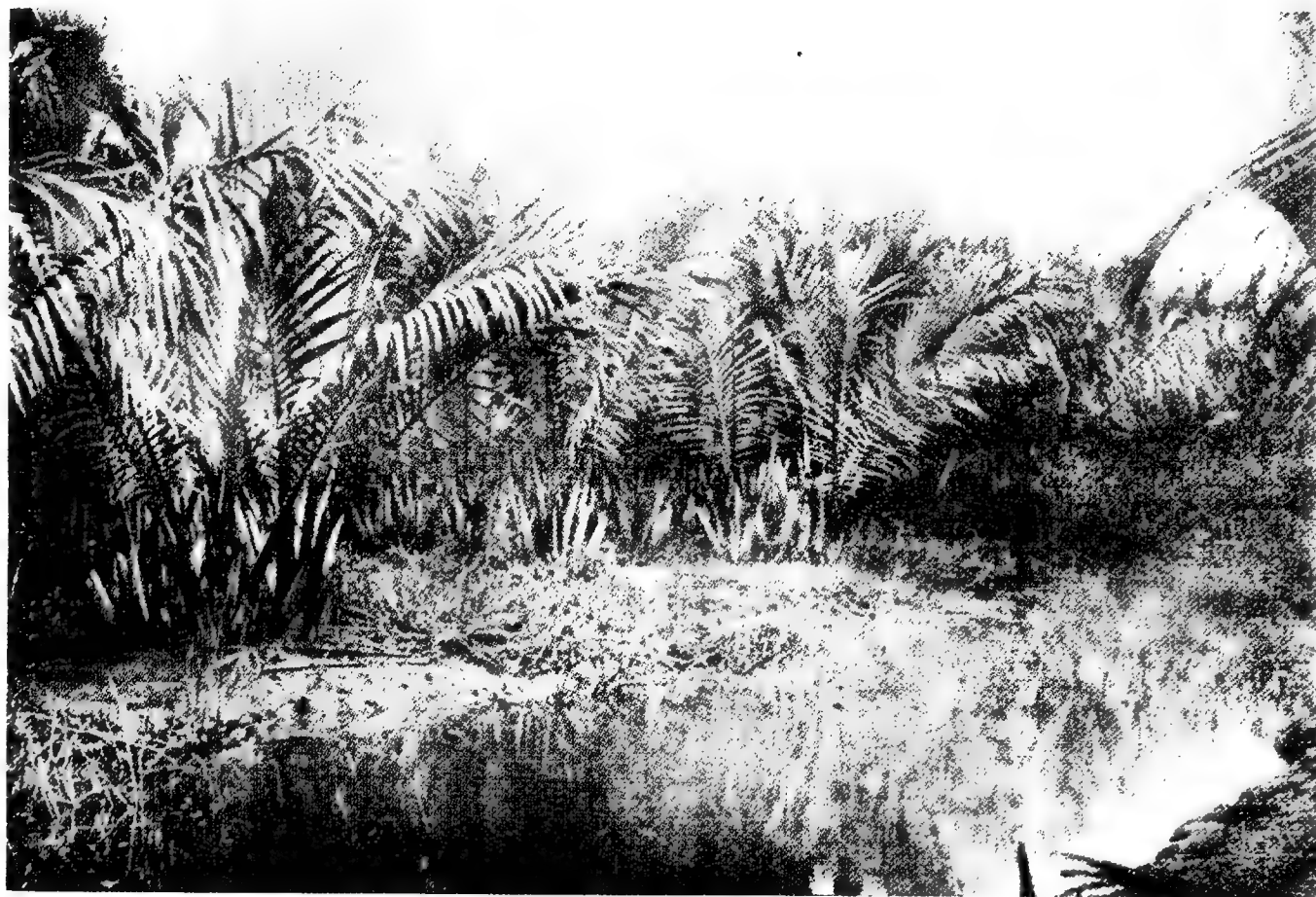


Figure 4. Saline swamp forest (Nipa).

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Figure 5. Freshwater swamp forest.

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of the Lesser Sundas. Tree heights average between 80 and 150 feet, although individual trees may reach 200 feet. The trees are spaced 10 to 30 feet apart, trunks are 2 to 5 feet in diameter, and many are buttressed. Beneath the topmost canopy a second story of smaller trees stands 50 to 60 feet high, with trunk diameters of about a foot. The density of the undergrowth is determined largely by the amount of light that filters through the top two layers. Where the canopy is sparse there is usually a dense undergrowth that normally consists of palms, climbing rattans, and thick vines that hang from the canopy. The vines and rattans are often covered with thorns that can tear clothing and inflict scratches. Where the canopy is dense, undergrowth is sparse. 25X1

25X1

At elevations between 4,000 and 8,000 feet, trees tend to be smaller, averaging 40 to 100 feet high, with individual trees up to 150 feet. Trunks are 1 to 3 feet in diameter and generally have no buttresses. Trees are spaced 6 to 30 feet apart. A dense undergrowth of shrubs 6 to 8 feet high covers the forest floor. Evergreen oaks, magnolias, and conifers are widely distributed, with conifers gradually becoming the most numerous near 8,000 feet. Between 8,000 and 12,000 feet scale-leaved conifers are dominant, but the needle-leaved mountain casuarinas, which grow in scattered stands on mountain slopes and summits throughout the Lesser Sundas, are also common. Up to elevations of 11,000 feet the trees usually form a continuous canopy. They are normally 40 to 100 feet high, with trunks 1 to 3 feet in diameter, and are spaced 10 to 50 feet apart. A few valleys contain open grassland. Above 11,000 feet the trees are scattered and dwarfed, with intervening spaces covered by 25X1 tufts of grass and shrubs.

25X1

e. Dryland Deciduous Forests

Dryland deciduous forests occupy roughly 20 percent of the Lesser Sundas, but they are much less extensive throughout the remainder of Eastern Indonesia. Although such forests occur most often at elevations below 3,000 feet, they occasionally are found up to 5,000 feet. Acacia, eucalyptus, and teak are common species, but they occur only rarely in pure stands. Forest reserve trees grow to heights of 100 feet, with branches cleared up to 50 feet; the trees are spaced 6 to 15 feet apart and have trunks up to 3 feet in diameter. Elsewhere, trees are generally smaller. The canopy is thin even when the deciduous forests have maximum foliage (November through June).

S-E-C-R-E-T

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Figure 6. Dryland evergreen forest.

- 22 -

S-E-C-R-E-T

Page 2007-05-03 : C:\GRP-38-9\11-69010-000



Figure 7. Dryland evergreen forest.

S-E-C-R-E-T

Consequently, a thin undergrowth of evergreen shrubs 2 to 3 feet high is common, and dense thickets 6 feet high grow locally. Furthermore, continuous tree cover does not exist everywhere. Occasionally the landscape consists of scattered trees averaging 30 feet in height separated by sizable areas of deciduous shrubs, cactus thickets up to 6 feet in height, or scattered clumps of grass 2 to 3 feet high. There is a fire hazard in deciduous forests from early July through October, when the vegetation is very dry. ^{25X1}

25X1

f. Mossy Forests

Mossy forests grow throughout Eastern Indonesia on persistently cloud-shrouded mountain slopes and summits at elevations between 7,000 and 11,000 feet and may grow locally as low as 3,500 feet. The forests consist of gnarled trees, 45 to 60 feet high, that form an uneven canopy above which scattered palms may project to a height of 80 feet. The largest trees are spaced 10 to 15 feet apart. A thick growth of thorny rattans reaches up into the trees. Moss covers the branches and twigs, and dense beds of moss as deep as 3 feet obscure the ground. Tree sizes and density of undergrowth diminish as elevation increases.

g. Secondary Forests

Patches of secondary forest, which develop when land has been cleared and abandoned, form a checkered pattern along with tracts of primary forest and cultivated fields. Such patches are most common on Celebes and on the islands of the western Lesser Sundas. The secondary forests are characterized by a tangle of small trees, bamboo, thorny vines, shrubs, and ferns; they form a nearly impenetrable growth -- a path can be cleared only with great difficulty. ^{25X1}

25X1

h. Grasslands and Savannas

Grasslands and savannas are most abundant in the Lesser Sundas, on the southwestern and southeastern peninsulas of Celebes, and in southeastern West New Guinea. Elsewhere in Eastern Indonesia, such areas are small and highly scattered, and usually consist of cogon grass. Extensive areas of pure

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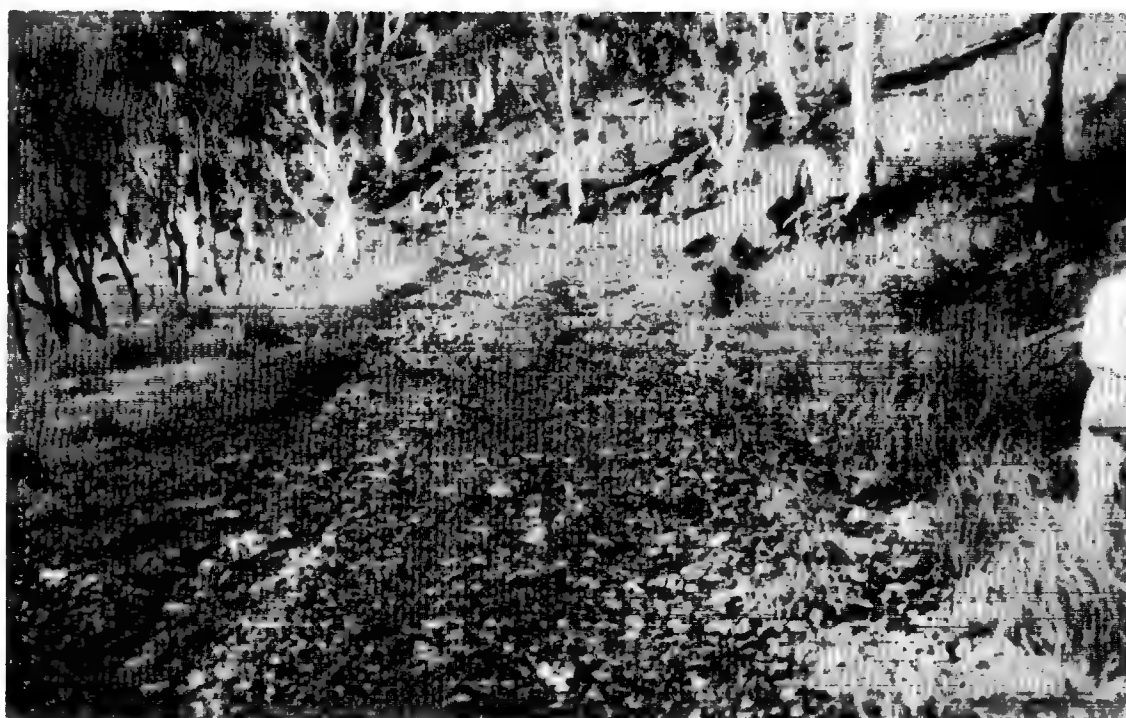


Figure 8. Dryland deciduous forest.

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Figure 9. Mossy forest.

S-E-C-R-E-T

S-E-C-R-E-T

grass are most likely to be found on the southern peninsulas of Celebes and on the islands of the Lesser Sundas. Here, 25X1 the grasses are generally 1 to 2 feet high, 25X1

25X1
25X1 [redacted] On Sumba and Timor, savannas prevail -- grassy areas containing scattered trees and thickets of bushes and cactus. The trees, usually 20 to 50 feet apart, include slender palms, acacias, and eucalyptus that grow to an average height of 40 feet and have trunk diameters of about a foot. The bushes are sparse leaved and spiny, and the cactuses form dense clusters as much as 10 feet high. Palms are common in coastal savannas, whereas acacias are more prevalent at higher elevations. The savanna landscape of southeastern West New Guinea differs slightly from that of the Lesser Sundas. The trees, mostly palms and eucalyptuses, grow to 80 feet and are usually 40 or more feet apart. There are also widely spaced patches of small shrubs and clumps of cogon grass 2 to 4 feet tall. Many of the savannas of southeastern West New Guinea are inundated during the wet season. Various kinds of grasses reach heights of 4 to 10 feet in the interiors of Frederik Hendrik and Komoran Islands. The grassy plains of the interior of these islands are dry from early June through November but become vast lakes that contain floating masses of aquatic grass from early December through May. Grasslands may be 25X1 significant fire hazards during the dry season.

i. Cogon Grass

Cogon grass grows at elevations below 5,000 feet in Celebes and the Moluccas and below 8,000 feet in West New Guinea. It covers the ground thickly, grows 2 to 4 feet high, and has sharp-edged blades about 1/2 inch wide. Depressions in cogon grass areas are often occupied by clumps of bamboo. Cogon is the dominant grass of the interior of West New Guinea and is especially common in parts of the Central Mountain Range. It burns readily during the dry season.

j. Cultivated Land

The proportion of cultivated land on individual islands varies widely; much of Bali, for example, is under cultivation, while less than 1 percent of West New Guinea's total area is cultivated. On most islands, much of the cultivated land is in tree crops. Coconut plantations are common in well-drained

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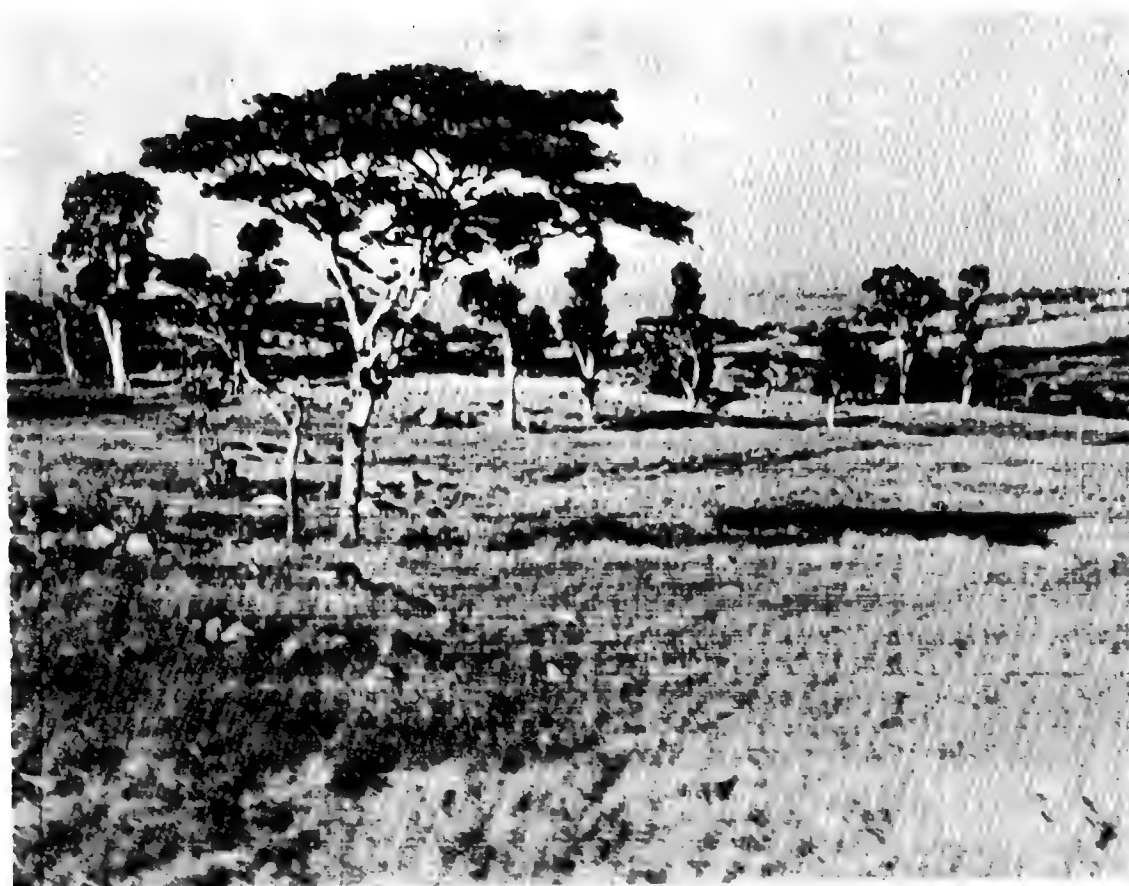


Figure 10. Savanna.

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Figure 11. Grasslands.



Figure 12. Cogon grass.

-29-

S-E-C-R-E-T

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coastal areas, and coconuts are grown locally up to 2,000 feet. On large plantations they are planted in a regular pattern, normally 25 feet apart. The trees are 30 to 60 feet in height, 8 to 12 inches in diameter, and form a sparse canopy. Undergrowth is rare. Coffee and nutmeg also are plantation crops.

Maize, grown at low elevations, occupies much land in the Lesser Sundas and on the two southern peninsulas of Celebes. It may be planted at any time between early April and late December and is harvested between early August and early May. The fields are usually fallow between crops.

Wetland rice is grown in parts of the Western islands. Individual fields are less than an acre and are surrounded by earthen dikes. The fields are flooded to a depth of 6 to 8 inches between early January and late March but gradually dry out before harvest time, which begins in August. Ricefields may be left fallow between rice crops or may be planted in maize, sweet potatoes, peanuts, or other crops. Dryland rice is grown in interior areas and, along with maize, is generally more common than the wetland variety in the easternmost islands.

Gardens, usually less than an acre, are common around villages throughout Eastern Indonesia. Small areas under shifting cultivation are scattered throughout dryland evergreen forests. Common crops in fields of both migratory and sedentary farmers include rice, sweet potatoes, beans, maize, sugarcane, and white potatoes.

B. Celebes (Sulawesi) and Associated Islands

See Figures 13 through 21.

1. Celebes

The large, irregularly shaped island of Celebes lies between Borneo, the Moluccas, the Philippines, and the Lesser Sundas. Narrow mountain ranges radiate from a central mountain core to form long peninsulas that extend to the north, northeast, southeast, and south. The straight-line distance from the tip of the northern peninsula to the southernmost point of the island is approximately 650 miles. The island, with an area of 73,000 square miles, is about the size of Michigan and the northern half of Wisconsin combined and is the fourth largest landmass in the Republic of Indonesia, ranking behind Borneo, Sumatra, and West New Guinea.

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a. Terrain

Roughly 90 percent of Celebes consists of heavily forested hilly-to-mountainous terrain interspersed with intermontane basins of varying sizes. Small villages are sprinkled among the ricefields in the basins; mountain slopes are, for the most part, sparsely populated. Most of the mountains are sharp crested and have steep sides that are dissected by short, turbulent streams.

The central core, the most rugged part of the island, consists of a series of north-south trending mountain ranges that extend into the southwestern peninsula. Crests exceed 11,000 feet in the west, but elevations decrease toward the east where intermontane basins, some containing lakes, are common. In places, especially in the southwestern part of the central core, local relief (the difference between the highest and lowest elevations within a horizontal distance of 1 mile) exceeds 2,000 feet and slopes are over 45 percent.

The northern peninsula is rugged, with local relief averaging about 1,000 feet but in places reaching nearly 2,000 feet. The north-south trending section of the peninsula is formed by a single narrow mountain range that reaches almost 8,400 feet in its northern part. Two roughly parallel mountain ranges form the east-west trending extension of the peninsula; the northern ridge reaches 7,980 feet, and the southern range attains a maximum of 8,880 feet. The area between the two ranges has several depressions, some of which contain lakes. Approximately a dozen volcanoes, the highest of which reaches 6,500 feet above sea level, rise near the eastern end of the northern peninsula. One of them, Mount Soputan, erupted in May 1966, causing widespread crop damage. A plateau, intensively cultivated and relatively heavily populated, occupies much of the tip of the peninsula.

The northeastern peninsula consists of two parallel mountain ranges that merge in the east to form a single range. The peninsula is very rugged, particularly in the west, where local relief exceeds 2,000 feet in places. The northern range reaches an elevation of 11,500 feet, the southern range rises to 8,600 feet, and the single range to the east has a maximum elevation of 5,500 feet. Between the northern and southern ranges there is a dissected limestone plateau that is characterized by underground drainage, caves, and sinkholes.

[REDACTED] Limestone areas, which commonly contain caves, can usually be recognized by disappearing streams, sinkholes, scraggly vegetation, and [REDACTED]

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sometimes by pinnacles that stand high above the surrounding terrain.

The southeastern peninsula consists of a series of broken southeast-trending ranges, interspersed with numerous depressions. In the northern part of the peninsula several of these depressions contain large lakes. Altitudes are highest in the west. Although this is generally the least rugged of the peninsulas, local relief in places reaches nearly 2,000 feet.

The rugged mountains of the central core extend for some distance into the southwestern peninsula, but an east-west trending corridor separates them from the lower mountains to the south. The two parallel ranges which extend southward from the corridor merge to form a rugged knot of mountains (rising to over 9,400 feet) at the southern end of the peninsula. The parallel ranges are not serious barriers to movement, although local relief exceeds 2,000 feet in places.

Lowlands, on which most of the people of Celebes live, generally occur as discontinuous valleys, intermontane basins, or narrow coastal strips. A narrow valley extends southeastward for roughly 100 miles from the northwestern coast of the central core to within 40 miles of Bone Bay, the large embayment that separates the two southern peninsulas. Throughout its length the valley is confined by mountains that rise as much as 6,000 feet above the valley floor. Another narrow valley extends roughly 60 miles into the central core from the southern shore of Tomini Bay, the bay that separates the northern and eastern peninsulas. This level-to-hilly lowland decreases in width from 13 miles in the north to 5 miles in the south.

Most of the west coast of the central core is bordered by a gently rolling plain, roughly 100 miles long and as much as 30 miles wide in the north. A 20-mile-wide plain extends for about 75 miles along the northern shore of Bone Bay. The lowland slopes gently seaward from elevations of approximately 300 feet along its inland margin.

The only significant lowlands outside the central core are on the two southern peninsulas. The southwestern peninsula has two lowland areas: a densely populated west coast plain, roughly 75 miles long and up to 15 miles wide; and a narrow, discontinuous, and less densely populated east coast plain. The two plains are connected in the north by a corridor 10 to 20 miles wide that is generally less than 300 feet above sea level; two lakes fill depressions in the central part of the corridor. On the southeastern peninsula an

S-E-C-R-E-T

east-west partly marshy lowland connects the coastal towns of Kolaka and Kendari.

b. Drainage

The drainage system of Celebes is characterized by short, swift streams that flow through V-shaped valleys, steep-walled gorges, and intermontane basins. In many instances, upland stretches of streams -- although unnavigable by any type of craft -- may offer the best route for foot travel through dense jungle areas. Although seasonal fluctuations in the streams are not great, flash floods may result in dangerous rises in water levels upstream and widespread flooding downstream. These may occur at any time of the year, but most commonly from November to June. Flash floods are only a temporary barrier to cross-country movement, since water levels usually drop to normal within a few hours after the rains have stopped, and then the streams can be crossed safely. The streams which cross coastal lowlands are generally shallow and flow more slowly than upland streams and often divide into multiple smaller streams with intervening marshy areas.

There are several large lakes and a number of marshes and swamps on Celebes. Most lakes are very deep and are surrounded by precipitous rock walls. They lie at various elevations and are interconnected by short, swift mountain streams that flow in rocky gorges, with many rapids and waterfalls. Marshes occupy some of the larger lowlands, and swamps occur in small isolated patches along the coasts of Celebes.

c. Vegetation
25X1

25X1 Evergreen forests [redacted] cover most of the highlands of Celebes, although some of the highest peaks are nearly barren. Secondary forests are widespread on the lowest slopes and in parts of the lowland, and mossy forests grow on persistently cloud-covered slopes. Relatively extensive 25X1 grasslands containing scattered patches of scrub [redacted] are common in the Manado area and in the southwestern peninsula; on the remainder of the island, grasslands occur only in small patches. Mangrove and casuarina grow in many coastal areas.

Cultivation is not extensive. The only significant areas are near Manado, north of Kendari, and in the southwestern peninsula. Plantation crops include kapok, rubber,

S-E-C-R-E-T

S-E-C-R-E-T

coffee, and coconuts. Of the numerous subsistence crops, the most important are maize and wetland rice.

d. Coasts

25X1 The long coastline of Celebes contains numerous beaches , though many are backed by rugged terrain. In many places steep mountains and hills extend to the sea, isolating small sandy beaches. Many sandy beaches are backed by mangrove swamps, particularly along parts of the two southern peninsulas. Approaches are encumbered in many places by reefs and in others by islets, rocks, and shoals. Along most coasts there are two high tides and two low tides each day, and the mean tide ranges are about 2 to 4 feet. Tidal currents are strongest between the offshore islands and the mainland. Surf higher than 4 feet along the Celebes coast occurs primarily from infrequent local storms.

25X1

2. Associated Islands

a. Sangihe - Talaud Archipelago

The two significant island groups that form the Sangihe - Talaud archipelago lie off the tip of the northern peninsula.

S-E-C-R-E-T



Figures 13 & 14. Celebes. Two views of volcanic terrain in northern peninsula. Mount Soputan, one of a number of volcanoes on the peninsula, erupted in May 1966, raining ash on Manado and nearby villages.



S-E-C-R-E-T

S-E-C-R-E-T



Figure 15. Celebes. Manado harbor. Deep and sheltered harbors are common on most of the Eastern Indonesian islands. Where there are no roads, movement into the interior is likely to be arduous because of steep slopes and dense vegetation.



Figure 16. Celebes. Tondano Lake in northern peninsula. Large lakes such as this occupy many of the intermontane basins of Celebes.

25X1

25X1

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Figure 17. Celebes. Typical landscape in southwestern peninsula

25X1

25X1

Mountains such as these served as sanctuaries for the Darul Islam terrorists who operated in the southwestern peninsula during the 1950's and 1960's.



Figure 18. Celebes. Hillside in northern part of central core area. Extension of rice cultivation on steep slopes, along with overgrazing of noncultivated slopes, has resulted in heavy erosion.

S-E-C-R-E-T

S-E-C-R-E-T



Figure 19. Celebes. Limestone formations in northern part of southwestern peninsula. Limestone terrain -- usually recognizable by its sheer slopes, scraggly vegetation, sinkholes, and underground drainage -- commonly is honeycombed with caves

25X1

25X1

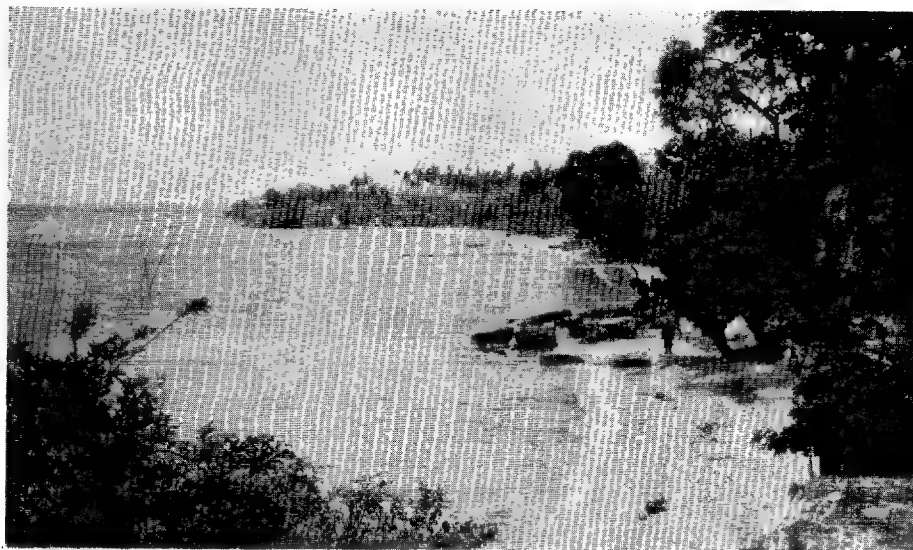
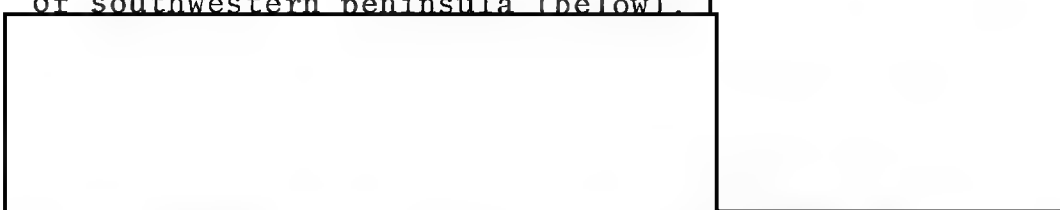
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Figures 20 & 21. Celebes. Beaches on north coast 25X1
of northern peninsula (above) and on west coast
of southwestern peninsula (below).

25X1



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The archipelago consists of about 60 fairly densely populated islands, stretching approximately 200 miles between Celebes and the Philippines. These islands are hilly or mountainous. Many are volcanic; Mount Awu on Sangihe Island erupted in August 1966, the fifth time in 3 years. Many reefs and islets lie off the generally rugged coasts of the archipelago. Beaches, consisting of coral and volcanic sands, lie mostly between rocky headlands. Sangihe Island is the largest of the Sangihe group, and Karakelong Island the largest of the Talaud group. The streams of the Talaud group are short, swift, and of little use for navigation; those of the Sangihe group are less turbulent but generally too short to be of navigational significance. Most of the islands are covered by dryland evergreen forests, but there are significant areas under cultivation in tree crops, most notably in central Karakelong Island and the northern portion of Sangihe Island.

b. Penju Islands

These islands, which are situated in the Gulf of Tomini north of the northeastern peninsula, include Batudaka, Togian, Talatakoh, Unauna, and numerous smaller islands. They are hilly to mountainous, and Unauna contains an active volcano. The short, turbulent rivers that descend from the forested highlands are generally not navigable. The islands of the group are separated by narrow, dangerous channels, and often have rocky, reef-fringed, or mangrove-choked shores.

c. Banggai Islands

The Banggai Islands lie off the south coast of the northeastern peninsula of Celebes. Peleng, the largest island of the group, is indented by two deep bays on the south coast and by one on the north coast. The coast of Peleng, although generally rugged, contains a few pockets of lowlands backed by swamps or areas of cultivation. Coastal approaches are encumbered by coral reefs and islets. The surface of the island is rugged, with numerous short, but abrupt, slopes. Much of Peleng has interior drainage, which results in an occasional seasonal scarcity of water. All of the Banggai Islands are densely forested, and large areas of western and eastern Peleng are under cultivation.

d. Wowoni

Wowoni lies off the eastern tip of the southeastern peninsula. It is a rugged, mountainous island that is densely forested. Some streams that cross the few coastal lowlands are navigable by small craft for short distances. Shores are sandy

S-E-C-R-E-T

in some coves and at river mouths, but are reef fringed in many areas and overgrown with mangrove.

e. Butung

Butung, south of Wowoni, is roughly 100 miles long and varies in width from 10 to 35 miles. A hill and mountain chain extending down the center of the island is the dominant feature. Most summits are under 2,000 feet, except in the north where there is a maximum elevation of 3,700 feet. The shores of Butung are generally rocky or overgrown with mangrove, but some reef-fringed sandy shores are found along the east coast. A narrow plain backed by low hills borders most shores, but along the northeast and southwest coasts steep hills and cliffs extend to the sea. Streams are generally too swift and rock choked to be navigable, although some in the eastern part of the island are used by small native craft. Dense secondary evergreen forests predominate in central Butung, but most of the northern and southern sections are covered by more open primary evergreen forests. Small coastal pockets of brackish swamps occur in the north and, to a lesser extent, in the south. Much of southern Butung is cultivated with tree crops. Wetland rice is also common.

f. Muna

This island, to the west of Butung, has relatively gentle terrain. The northern half of the island is undulating to hilly, except for low, wide plains along the north and west coasts. The southern half of the island consists mostly of limestone hills which rise in terracelike ridges. Maximum elevations, only slightly over 1,000 feet, are in the east. Streams flowing to the west tend to be sluggish and are navigable for short distances inland. Those flowing to the east are generally shorter and more turbulent. Most of northern Muna is covered by primary evergreen forests, whereas the southern half is dominated by secondary evergreen forests. A narrow strip of salt-water swamp extends along much of the west and north coasts. The northern part of the east coast also is low and swampy, but the terrain becomes hilly and cliffed in the south. Elsewhere along the coast, hilly or rocky terrain extends to the sea. Sea approaches to Muna are generally hazardous because of the many islands, reefs, and narrow channels.

g. Kabaena

This small island to the west of Muna is steep and mountainous, with a maximum elevation of 5,400 feet. Much

S-E-C-R-E-T

of the coastline of Kabaena is rocky and steep, but there are isolated pocket lowlands on the southwest coast and a large mangrove-choked lowland on the northwest coast. Much of the interior is covered by secondary evergreen forests, but primary forest growth dominates in the north and south. Streams are generally too short and turbulent to be navigable.

h. Salajar

Salajar is a narrow north-south oriented island some 10 miles off the southeastern tip of the southwestern peninsula. It is 50 miles long, with a maximum width of 7 miles. A mountain range (up to about 2,000 feet high) extends the length of the island; it descends abruptly eastward to a steep, rocky coast but slopes more gradually toward a flat-to-undulating west coast. Sandy shores are generally found only on the west coast. Streams are generally swift, rocky, and shallow and flow in V-shaped valleys, with no true banks. Some streams that cross the western lowland are navigable by native craft for short distances. The northern half of the island is predominantly grassland, and the southern half is covered by evergreen forests.

C. Lesser Sundas

See Figures 22 through 35.

1. General

The Lesser Sundas stretch for about 900 miles between 114°E and 127°E, and lying between 8°S and 11°S they form the southernmost string of islands in Eastern Indonesia. Four of the larger islands and an island group -- Bali, Lombok, Sumbawa, Flores, and the Solor - Alor archipelago -- comprise a string of closely spaced islands that extend eastward from the eastern tip of Java. The two remaining large islands -- Sumba and Timor -- are located to the south. Collectively, the islands of the Lesser Sundas include approximately 28,600 square miles of land.

a. Physical Features

Most of the islands have rugged, mountainous terrain. Lowlands are generally limited to coastal areas adjacent to the mouths of rivers and streams. The people live primarily in small villages in the lowlands; upland areas are sparsely populated. Many of the mountains are of volcanic origin and are still active. On Bali, for example, an eruption in 1963 caused widespread damage. Recent volcanic activity has

S-E-C-R-E-T

S-E-C-R-E-T

also been recorded on Sangeang (a small island off the north-eastern coast of Sumbawa), on Flores, and on Paloe (off the north coast of Flores).

Coastlines range from precipitous cliffs and headlands to gentle sandy beaches. Coral reefs block easy access to many beaches, and mangrove swamps are common shore features.

25X1 [REDACTED]

25X1 [REDACTED] Most of the islands experience two high and two low tides each day. On several islands in the central part of the Lesser Sunda chain, the mean tide range is between 6 and 7 feet, but it decreases westward and eastward to about 2-1/2 feet on the northern Bali coast and about 3-1/2 feet on southwestern Timor. Sea, swell, and surf conditions along the Lesser Sundas are quite different on the north and south coasts of the islands. The north coasts experience significant offshore waves and surf relatively infrequently, although conditions are poorest during the northwest monsoon. The south coasts are more exposed to waves throughout the year, and depending on alignment, they may be subject to rough surf conditions at any time. Conditions are generally less severe on southeastern Timor and along the coasts which border the Savu Sea.

With few exceptions, island streams are short, turbulent, and navigable only for short stretches by native craft, if at all. During the dry season, many rivers run dry and the riverbeds are often used by natives as trails, either on foot or on horseback. Bridges are commonly washed out during high water and not replaced for long periods. Most rivers can be forded; although during rainy weather, vehicles may be forced to wait several days for the rains to stop and the waters to subside. Rivers are often blocked by sandbanks or mudflats at their mouths and also where they emerge onto the coastal lowlands. Underground streams are common in limestone areas.

Deciduous trees and those evergreens capable of adaptation to prolonged wet and dry seasons, such as the eucalyptus, form the most prevalent tree cover; grasslands and savannas are widespread. Dryland evergreen forests occur only locally in the Lesser Sundas, chiefly on the western islands. Wooded areas, which become more sparsely distributed toward the east, generally do not have dense stands of trees, although the undergrowth in them may be dense.

25X1 [REDACTED]

[REDACTED] 25X1

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2. Bali

Bali, the westernmost of the Lesser Sundas, lies approximately 2 miles off the eastern tip of Java. It is approximately 87 miles from east to west and 55 miles from north to south.

Bali has two major terrain regions: the sparsely populated volcanic mountains in the north, and the lowland in the south, where population densities are as high as those on Java. Elevations average 4,000 feet above sea level throughout the mountains, with the highest elevation on the island (10,300 feet) located in the east-central part of the range.

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Figure 22. Bali. Terraced wetland ricefields along north coast. Coastal plains on the northern side of the island are generally narrow and interrupted by mountain spurs; consequently, cultivated tracts are limited in extent. In contrast, the extensive flat lowland south of the mountains is blanketed by rice paddies.

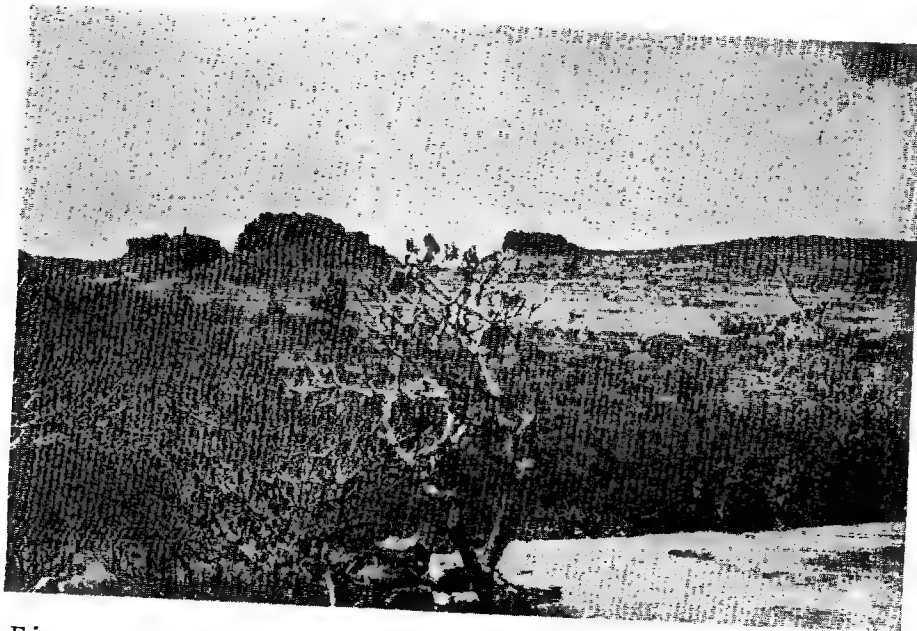


Figure 23. Bali. Limestone terrain in southern part of island. As in other limestone areas in Eastern Indonesia, vegetation is sparse.

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Several large, deep lakes occupy volcanic craters in the central part. Although conditions vary locally, the northern slopes are generally steeper than the southern and descend abruptly to narrow coastal plains.

The southern lowlands merge almost imperceptibly with the gentle southern slopes of the mountains. Maximum lowland elevations, about 1,800 feet, are in the north, and it is here that the greatest local relief on the lowlands occurs. The gently rolling lowlands are the most intensively cultivated and densely populated part of Bali, with seemingly endless wetland ricefields stretching for miles.

A small peninsula, connected to the mainland by a low, narrow isthmus, extends from the southern lowland. It is a steep-sided limestone plateau that rises to approximately 650 feet above sea level. The surface of the plateau is gently rolling and contains numerous sinkholes, caverns, and underground streams. This peninsula, like the northern mountains, is sparsely populated and has been the target for government-sponsored projects to move people from the overpopulated southern lowlands. The infertility of the soils of the peninsula, however, has doomed most such projects to failure.

The northern mountain range forms the drainage divide on Bali. Streams flowing northward tend to be short and turbulent and to flow rapidly through steep-sided valleys; they are unsuited to navigation. Rivers flowing to the south are longer and less turbulent, especially in their lower reaches; their channels are generally broad and deep, banks are usually low, and sandbars or mudbars often block their mouths. Once past the entrances, however, shallow-draft vessels can navigate the rivers for considerable distances. Rivers on Bali have a high-water period from November through March and a low-water period from April through October, during which time the rivers may carry little or no water. Much of the water from streams is diverted into irrigation canals to serve the extensive areas of wetland ricefields. Fishponds are common.

Most shores of Bali are sandy. In some places along the north coast, mountain spurs rise sharply from the sea, restricting exit inland, but most beaches are backed by a narrow coastal plain. The north and southeast coasts are relatively free of coral, but reefs are common elsewhere, and amphibious landings would be affected accordingly.

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Figure 24. Bali. Typical mountain vegetation at intermediate elevations. The sparsity of main tree growth and an open canopy result in dense undergrowth, [REDACTED]

25X1

[REDACTED] 25X1

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A variety of vegetation grows on Bali. The highest elevations are covered by evergreen forests, with deciduous forests on intermediate slopes. Tree crops, especially coffee, occupy many mountain slopes up to 5,000 feet. Wetland-rice cultivation dominates the remainder of the island. Tidal swamps are found in some coastal areas.

Nusa Penida is a steep-sided limestone island with difficult approaches, located approximately 8-1/2 miles off the southeastern coast of Bali. Its gently rolling surface rarely exceeds 1,700 feet in elevation. Streams are short and swift, and underground streams are common. Grass is the dominant natural vegetation, but much land is devoted to the cultivation of subsistence crops.

3. Lombok

Lombok is separated from Bali by Lombok Strait. Landforms and settlement patterns on Lombok are similar to those on Bali. The population is concentrated in the central lowland; the northern volcanic mountain range and the southern limestone range are sparsely populated. The northern east-west trending mountains rise to a maximum elevation of 12,225 feet near the center of the range and are heavily wooded. The entire range slopes steeply to both the north and the south and is generally rugged throughout. A large horseshoe-shaped lake, at 6,385 feet above sea level, is situated near the center of the range. Coastal areas adjacent to the northern mountains are generally steep and rocky, 25X1

25X1

A lowland, approximately 34 miles long and 12 to 18 miles wide, extends from the west to the east coasts through central Lombok. The surface of this densely populated lowland is gently undulating. The lowland coasts are low and sandy and are commonly overgrown by low vegetation.

A range of rounded limestone hills and mountains parallels the steep south coast of Lombok and protrudes into the sea off the west and east coasts to form small peninsulas. Although some elevations are over 2,000 feet, most of the range does not exceed 1,000 feet. The upland lacks surface 25X1
water, is virtually unpeopled,

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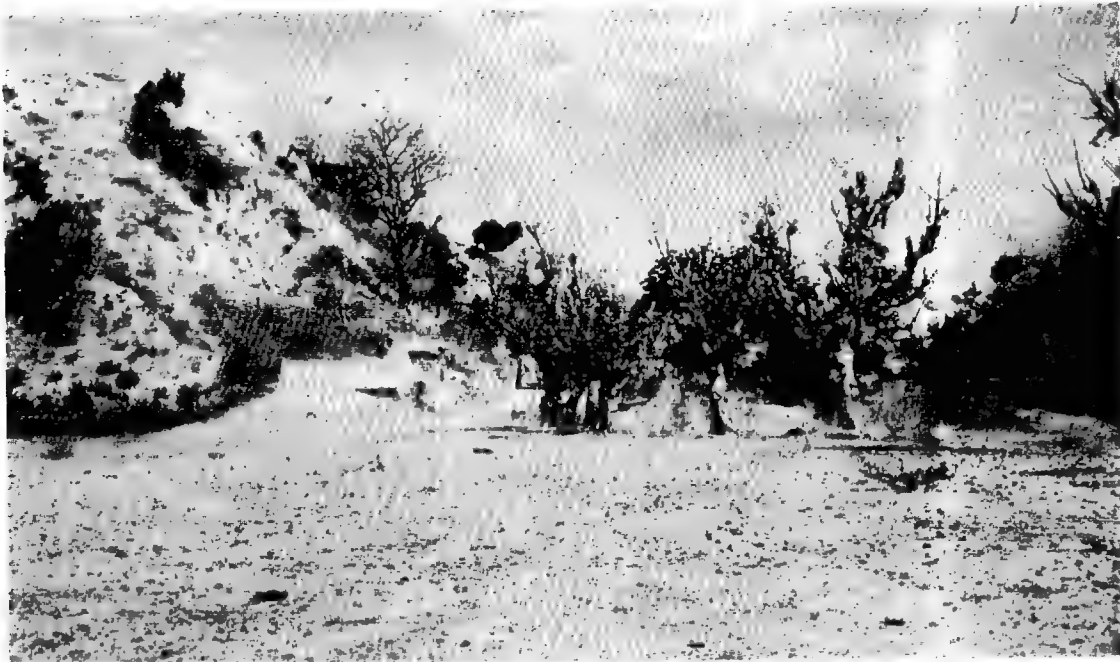


Figure 25. Northern Lombok. Sparse vegetation. Seasonal aridity, which becomes more pronounced in the eastern Lesser Sundas, is evidenced by the scanty grass cover and low, scraggly trees and shrubs.



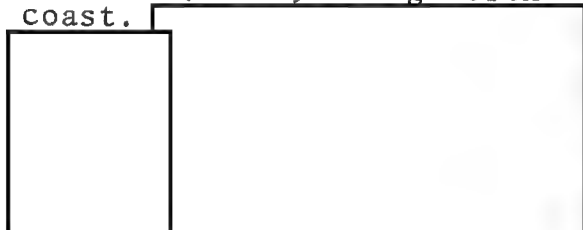
Figure 26. Lombok. Terraced ricefield in central lowland. This region, nestled between the rugged volcanic range of the north and the low, gently rolling limestone hills of the south, is intensively cultivated and supports most of the population.

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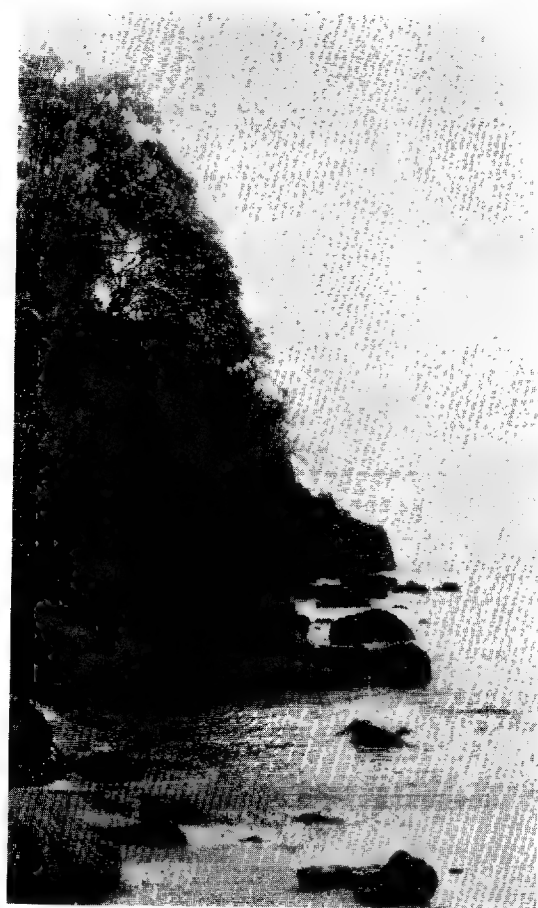
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Figures 27 & 28. Lombok.
Stretch of rugged coastline
(above) and unobstructed
beaches (below) along north
coast.

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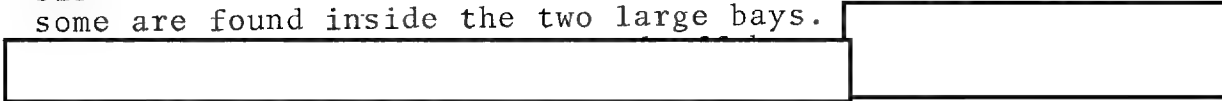
Streams flowing through the northern range are generally turbulent and have cut deep channels. Those crossing the central lowland, however, are much less turbulent. The island has plenty of water during the northwest monsoon but experiences a marked low-water period from May through October, especially in the east.

The vegetation of Lombok reflects the seasonal aridity of the Lesser Sundas. Deciduous growth and prickly pear cactus are common. The lower slopes of the northern mountain range are heavily planted with tree crops; the highest elevations are covered with dense evergreen forests. Most of the southern range is covered with deciduous forest, but grasslands, bamboo thickets, and plantations are common. The central lowland is devoted principally to the cultivation of wetland rice.

4. Sumbawa and Associated Islands

Sumbawa, approximately 5,200 square miles in area, lies east of Lombok and extends approximately 165 miles in an east-west direction. Two deep coastal indentations nearly bisect the island. Scattered reefs lie off the coasts, and 25X1 some are found inside the two large bays.

25X1



Most of Sumbawa is very rugged, and in many places mountains descend abruptly to the sea. Sharp ridges and 25X1 deep ravines are numerous,

25X1

The mountains in the western part of the island average over 3,000 feet in elevation; those in the east are volcanic and reach a maximum elevation of over 9,350 feet.

Lowlands on the island are generally restricted to coastal areas, to the lower reaches of a few large rivers, and to a few swampy areas at the heads of the larger bays. The most extensive lowland, which is also the most densely populated area, is along the north coast in the western half of the island.

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Figure 29. Eastern Sumbawa. Cultivated plain, backed by rugged, scrub-covered hills. Water buffalo in background are grazing on rice stubble.

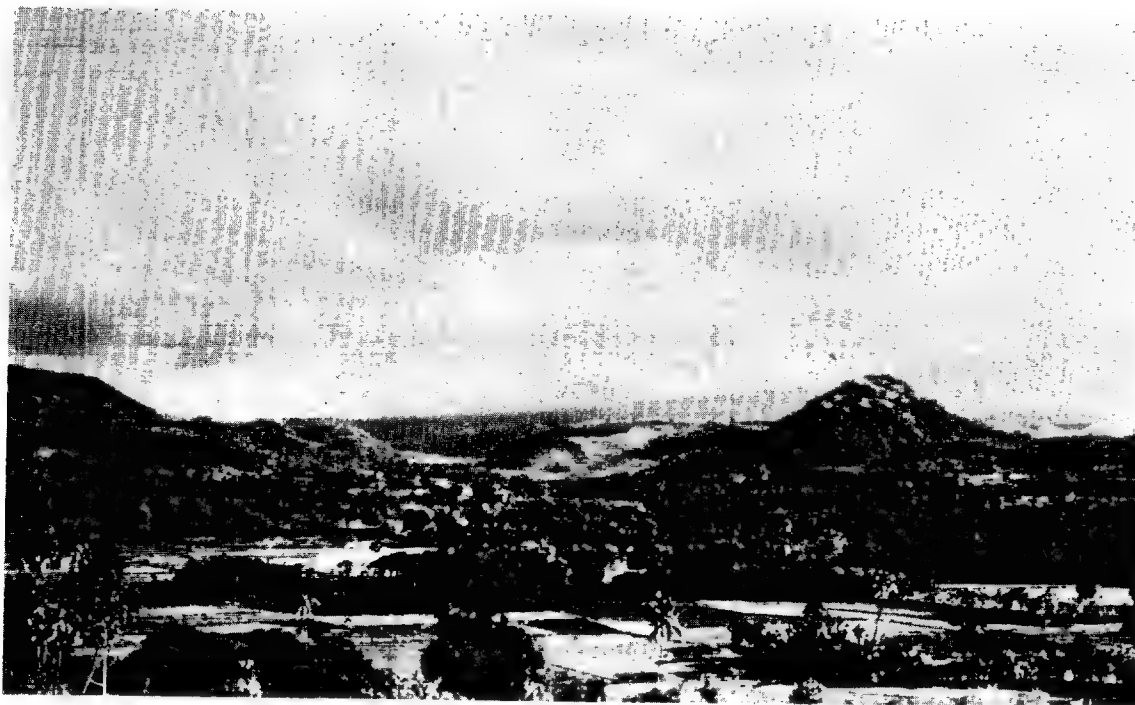


Figure 30. Sumbawa. Northern coastal plain near Sumbawa Besar. This part of the island is relatively intensively cultivated and heavily populated. Hills in background are outliers of low nonvolcanic central mountain range.

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Few of the rivers of Sumbawa are navigable. Those descending from the mountains flow in deeply incised valleys and are generally swift and turbulent. Some rivers flow relatively slowly and broaden while crossing narrow coastal plains, but they are navigable only for very short distances. Many rivers in the eastern part of the island dry up during the southeast monsoon.

Grasslands are common on Sumbawa. Deciduous forests become more prevalent at higher elevations, and evergreen forests cover the highest peaks. Both wetland and dryland rice, coffee, coconuts, and fruits are cultivated in coastal areas and on the volcanic slopes in the east.

There are some stretches of unencumbered sandy shores on Sumbawa, but most shores are reef fringed. The south and east coasts are mostly rocky and cliffed, with some sandy stretches, while the north and west coasts are alternately rocky and sandy.

Mojo, a hilly forested island with few elevations over 2,000 feet, lies astride the entrance to Saleh Bay on the north coast of Sumbawa. The coast is quite steep in places, with occasional reefs. The only lowlands are narrow coastal plains. Streams are short and turbulent and of little navigational use.

Sangeang, off the northeast coast of Sumbawa, has very rugged terrain in the east but becomes slightly less rugged in the west. An active volcano rises 6,395 feet above sea level. The coast is generally steep and fringed by reefs. The island is covered by evergreen forests.

5. Flores and Associated Islands

Flores, with an area of about 8,870 square miles, is the second largest island of the Lesser Sundas. This sparsely populated island is about 225 miles long. The coasts are rugged and deeply indented. A range of mountains traverses the length of the island, attaining heights of over 7,800 feet. The entire range is volcanic and has many points of eruption, especially in the east. Many high mountain spurs descend abruptly to the sea. A few lowlands border the coasts and flank the mouths of major rivers. Streams characteristically flow in deeply incised channels and are swift and turbulent; they are of little use for navigation. Many streams become dry during the southeast monsoon. Dryland deciduous forests (leafless from July through October) dominate the highest slopes on Flores, but these forests share the lower slopes

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Figure 31. Eastern Flores. Main east-west road during wet season. During the dry season (May-October), traversing this road would not be a serious problem, but when the first heavy rains arrive in December, the road becomes a mire and is virtually hidden by encroaching vegetation.

Figure 32. Flores. Rugged volcanic terrain in central part of island. There are many active eruption points throughout the island.



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with grasslands and cultivated crops. Wetland rice is grown in narrow river valleys and coastal areas.

Most stretches of sandy shore lie at the head of bays and coves; elsewhere the shores are rocky. Coral reefs fringe most shores, and combined with generally rugged terrain inland would hamper amphibious operations.

Komodo, an irregularly shaped island famed for its Komodo dragons, lies between Sumbawa and Flores. Its coastline is deeply indented; the shores are very steep, and there is no appreciable coastal plain. The island is predominantly hilly, with some rugged areas. Natural vegetation consists of open deciduous forests interspersed with areas of grass 1 to 2 feet high. Streams are too short and turbulent to be of any navigational significance.

Rintja lies between Komodo and Flores. Its surface is quite hilly, with few level areas. Streams generally are short and swift and drop from steep coasts into the sea. Cogon grass, interspersed with deciduous trees, is the dominant vegetation.

Paloe is a rugged, circular island off the north coast of Flores. It culminates in a single volcanic peak but has a number of eruption points, some of which have erupted violently in this century. The coast is generally precipitous, although there is a narrow coastal plain in the northeast. The island is forested and has no significant streams.

Besar, a small, circular, rugged island that rises to 2,870 feet above sea level, also lies off the north coast of Flores. It is wooded and has no significant streams. Mountain spurs extend to the sea on the south and west coasts, but small coastal plains are found along the north coast.

6. Solor - Alor Archipelago

This island group extends approximately 150 miles east of Flores. It contains five large islands and numerous smaller ones. On all islands of the group, the population is confined to small villages scattered along the coasts. The rugged interiors may be virtually uninhabited.

Adonara is roughly 20 miles long and 10 miles wide and is encircled by almost unbroken coral reefs. Volcanic mountains dominate most of the island and attain maximum elevations of over 5,400 feet. The coasts of Adonara are generally low, sandy, and wooded, and they rise gradually to the mountains. Coastal lowlands are the only extensive

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level areas on the island. Grasslands, interspersed with cultivated vegetation, dominate the lowlands; deciduous forests cover the highlands. Occasional patches of mangrove are found on the shores. Streams are short and are dry much of the year.

Solor lies due south of Adonara. It is crescent shaped and extends approximately 20 miles in a northeast-southwest orientation. Three groups of mostly rugged volcanic highlands are separated by two gently undulating lowland areas. The coasts of Solor are generally low and either sandy or stony. A few areas are backed by cliffs, but apart from these stretches access inland is generally easy. The few short streams on Solor are dry much of the year. Vegetative cover is thin and consists mostly of grasslands with scattered trees.

Lomblen, the largest island of the Solor group, extends southwest-northeast for a distance of roughly 50 miles. It is volcanic and generally mountainous, with elevations up to 5,400 feet, but toward the central part of the island the terrain becomes predominantly hilly. Because the streams are short and for much of the year dry, they are of little navigational significance. Vegetation is sparse, consisting primarily of short grasses. The coast is highly irregular and deeply indented. The south coast alternates between rocky cliffs and sandy beaches backed by small stretches of coastal plain that contain occasional coconut plantations. The north coast is generally high, with pockets of lowland and sandy beaches. Parts of the west coast are covered with mangrove; coral reefs are a hazard all along this coast.

Pantar is mostly hilly to mountainous. Local relief is generally 500 to 1,600 feet but may be as much as 2,000 feet in mountain areas. The highest point (4,487 feet) is an active volcano on the southern tip of the island. The few lowlands are generally restricted to coastal areas. Most of the island's streams are dry for long periods. Vegetative cover consists primarily of grasses and scattered deciduous trees. The coasts are generally steep and rocky, especially in the east. The north coast is fringed by coral reefs.

Alor is the largest and easternmost island of the Solor - Alor group. This sparsely populated island trends east-west and has a small peninsula protruding into the Flores Sea from its northwestern shore. A rugged mountain range, consisting primarily of dormant volcanoes, traverses the island. Local relief is generally between 1,600 and

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2,000 feet throughout the mountain chain. The only appreciable level area is at the neck of the peninsula; elsewhere coastal lowlands are small and discontinuous. Rivers are short and are dry most of the year. The sparse vegetative cover consists primarily of grasslands with a few scattered trees. Some of the higher elevations, however, contain small stands of deciduous forest. Most of the coastline is steep and rocky, with mountain spurs frequently protruding into the sea.

7. Sumba

Sumba, south of Flores and west of Timor, trends east-west for a distance of 130 miles and is approximately 40 miles wide. The island lies to the south of the main east-west volcanic chain of the Lesser Sundas and is composed of low, rounded limestone mountains with few prominent peaks. The terrain, consequently, is not as serious a deterrent to travel as the more rugged volcanic islands to the north. The highest elevations are barely over 4,000 feet, and local relief ranges between 500 and 1,600 feet throughout the island. Except for the rugged southwest coast, the shores on Sumba are generally low and sandy and are usually backed by narrow plains, the widest of which are on the northwestern and northeastern sections of the island. The plains, particularly the northwestern, are the most densely settled parts of the island. Reefs, which fringe most coasts, and mangrove swamps, which cover parts of the southeast and northeast coasts, would limit amphibious operations. Several limestone plateaus within the mountain areas have caverns and underground streams.

Numerous streams drain Sumba. Characteristically, they are torrential during the wet season and dry during the dry season. Many have sandbars at their mouths. Some northeastward-flowing streams are navigable by native craft for short distances inland.

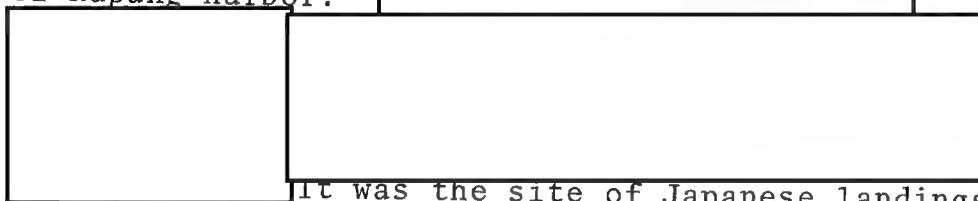
Vegetation is sparse; there are large areas of savanna, especially in the eastern part. Only the southern part of Sumba is covered by primary or secondary evergreen forests, or by deciduous forests. The deciduous forests are usually leafless from July through October and have sparse undergrowth. Savannas, containing scattered palms and acacias, share most of the lowlands with occasional fields of dryland rice, maize, and tobacco, as well as orchards and pastures.

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Figures 33 & 34. Indonesian Timor. Two views
of Kupang harbor.

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It was the site of Japanese landings
during World War II.



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8. Timor and Associated Islands

Timor, shared by Indonesia and Portugal, is the largest of the Lesser Sundas. The island trends southwest-northeast for approximately 290 miles, has a maximum width of 62 miles, and has an area of approximately 13,000 square miles.

Timor is composed of a series of parallel ridges -- stark and sometimes rugged -- that form a central mountainous backbone with elevations up to 9,500 feet. Extensive gently rolling limestone plateaus are found among the mountain ranges, especially in western and central Timor. Steep spurs protrude from the central mountains on all sides, separating areas of coastal lowlands. There are some relatively extensive plains, particularly along the south coast; they are poorly drained and sparsely populated. The population is generally confined to the less extensive northern coastal plains as well as to the plains along some of the larger rivers in the interior.

Kupang Bay, near the southwestern tip of the island, is the only major indentation on the coast of Timor. Shores of the island are generally sandy, with extensive swampy stretches.

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[REDACTED] The Japanese carried out successful amphibious landings at Dili and Kupang on the north coast during World War II.

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Native craft can be used only in the extreme lower stretches of Timor's rivers, if at all. Almost all the rivers are dry from May through October and are torrential during the wet season. The estuaries of many of the south-flowing rivers become clogged with sand blown onshore by the strong winds of the southeast monsoon. Consequently, the rivers overflow their banks during the wet season and contribute to the marshy condition of much of the south coast.

Savanna, which supports large herds of cattle, is the predominant natural vegetation of Timor, but a few scattered areas of open forest grow on upper slopes, in river valleys, and in the coastal lowlands. Eucalyptus trees are predominant in the southern foothills, although they are interspersed with bamboo and sandalwood. Discontinuous pockets of mangrove forest occur along the coasts. Most cultivated areas are devoted to coconuts, bananas, maize, coffee, tobacco, and vegetables.

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Figure 35. Indonesian Timor. View of interior.

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Semau, a low island with gentle limestone hills and a steep coast greatly encumbered by reefs, lies less than 2 miles off the southwest coast of Timor, at the entrance of Kupang Bay. Vegetation consists of grasslands interspersed with scattered trees and cultivated lands.

Roti also lies a short distance off the southwest coast of Timor. It trends northeast-southwest for 50 miles and is approximately 10 miles wide. Although its center is fairly rugged in places, much of the island is gently rolling. The navigability of the island's rivers is limited by long periods of low water during the dry season and by excessive turbulence during the northwest monsoon (December through February). Grass is the dominant vegetation, but scattered deciduous and evergreen trees grow on slopes exposed to moisture-bearing winds. The coastline of Roti is generally rocky, and coral reefs and tricky tidal currents make approach to the coast difficult.

The Sawu Islands consists of three small islands -- Sawu, Raidjua, and Dana -- that lie between Sumba and Timor. All are low with rounded hills, covered predominantly with grass. Coconut palms are found along the sandy shores. Coasts are mostly low and sandy, and approaches are generally clear.

Kambing (Atauro), off the north coast of Timor, is a small mountainous island. Its southern half is very rugged -- local relief often exceeds 2,000 feet. The mostly short streams are turbulent during the wet season and frequently run dry during the dry season. Although grasses are the most common vegetation of Kambing, scattered palms and acacias also are found. The coast is generally rocky and backed by steep terrain.

D. Moluccas

See Figures 36 through 42.

The Moluccas lie between Celebes and West New Guinea, extending from roughly 3°00'N to 8°30'S. This area contains hundreds of islands that range in area from less than 1 square mile to more than 6,600 square miles. The total land area of all the Moluccas is about 35,000 square miles.

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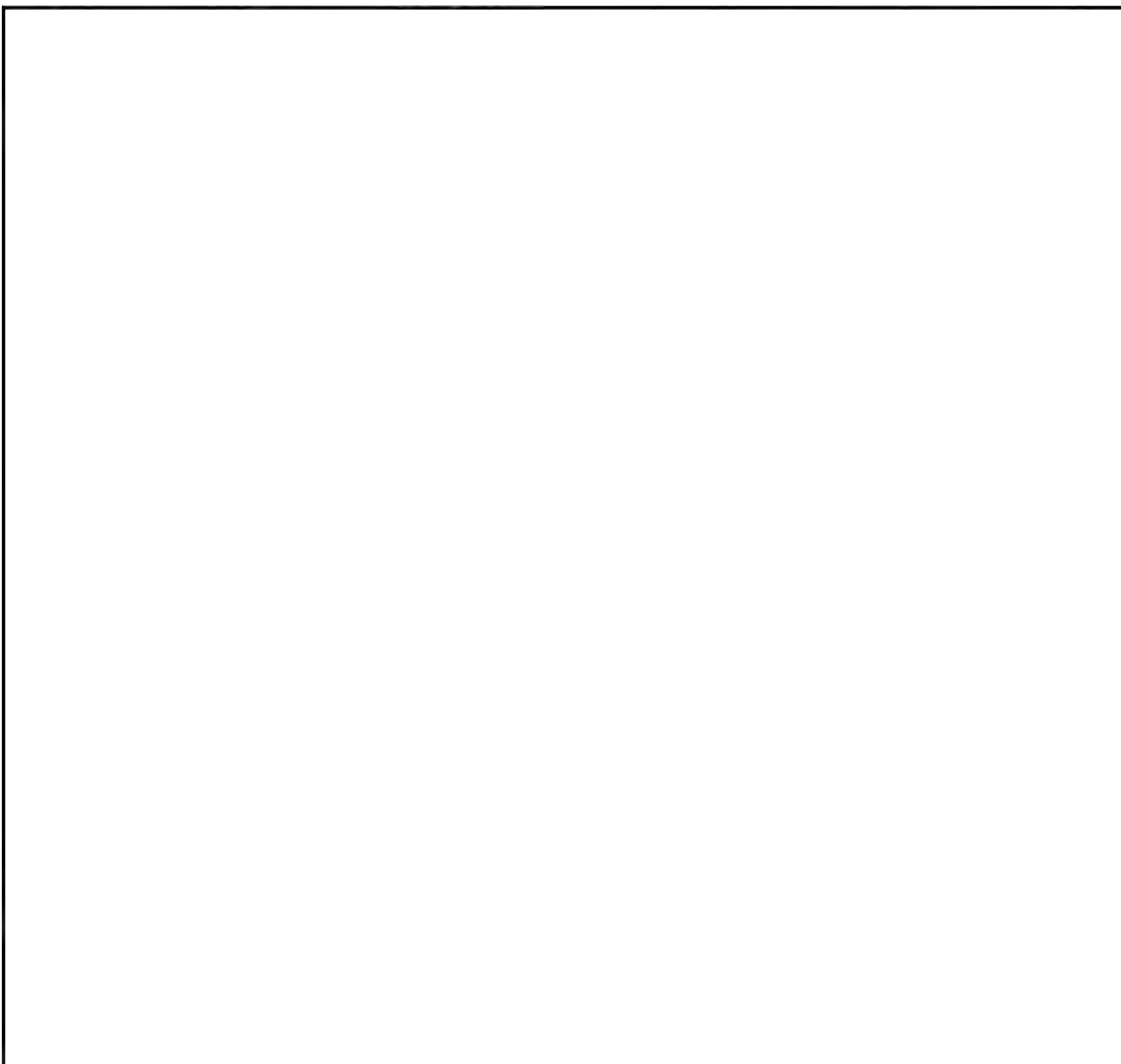
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1. General

a. Physical Features

Except for the Aru Islands and the Tanimbar Islands, the Moluccas are generally mountainous, although in some areas low hills or small coastal plains break the pattern of high rugged terrain. In contrast to the islands of the Lesser Sundas, which are thinly wooded, the Moluccas are generally covered with luxuriant forest. The dense vegetation, together with the rugged terrain, has confined the population to coastal stretches.

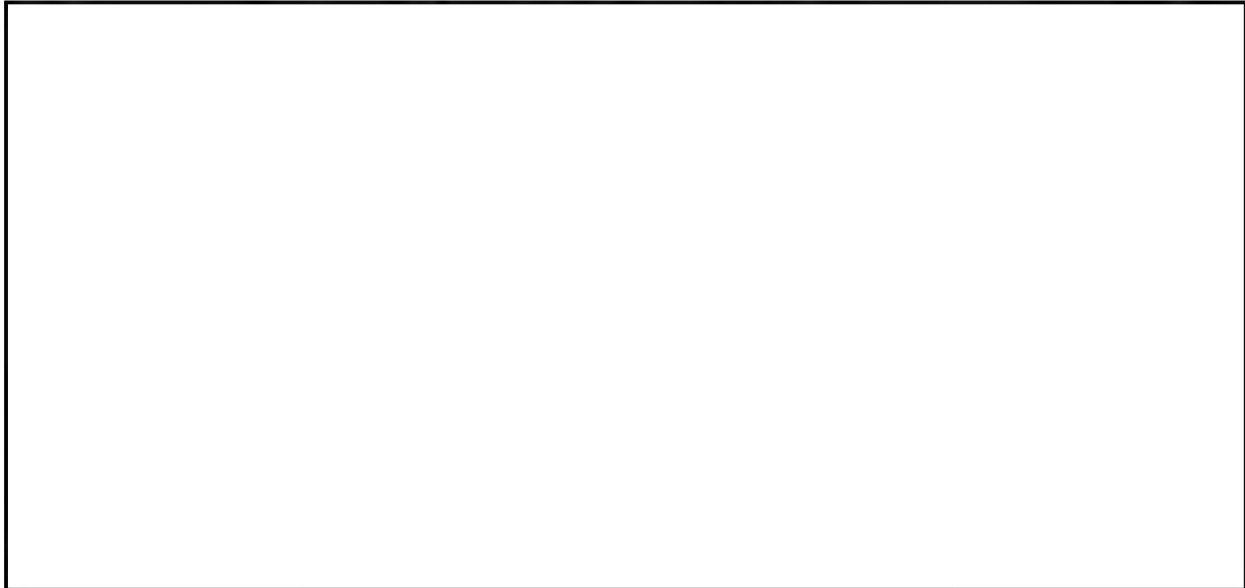
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2. Halmahera and Associated Islands

Halmahera, with an area of approximately 6,500 square miles, is the second largest island in the Moluccas, being slightly smaller than Ceram. The four rugged peninsulas that radiate from a central core to the north, northeast, southeast, and south form a landmass that is similar in shape to Celebes. Each peninsula has mountain ranges whose summits are generally between 1,000 and 5,000 feet. The southeastern peninsula is somewhat lower than the others, but all of the peninsulas are rugged and difficult to cross. The central portion of the northern peninsula is volcanic, although only a few peaks are active. The heavily forested mountainous interior is virtually uninhabited; the majority of the people live on the plains that fringe parts of the coast.

River valleys form the most extensive lowlands of the central core of Halmahera. Coastal lowlands are most numerous on the northern peninsula, which also contains a few plains that penetrate inland as river valleys. Though less numerous than on the northern peninsula, several large coastal lowlands flank river mouths on the remaining peninsulas.

The coasts of Halmahera are mostly steep and rocky, with reefs and shoals close offshore. Coastal plains with sandy beaches back some shores, but they are isolated from one another by rocky mountain spurs that descend abruptly to the sea. Steep slopes that make exits into the interior difficult back most plains.

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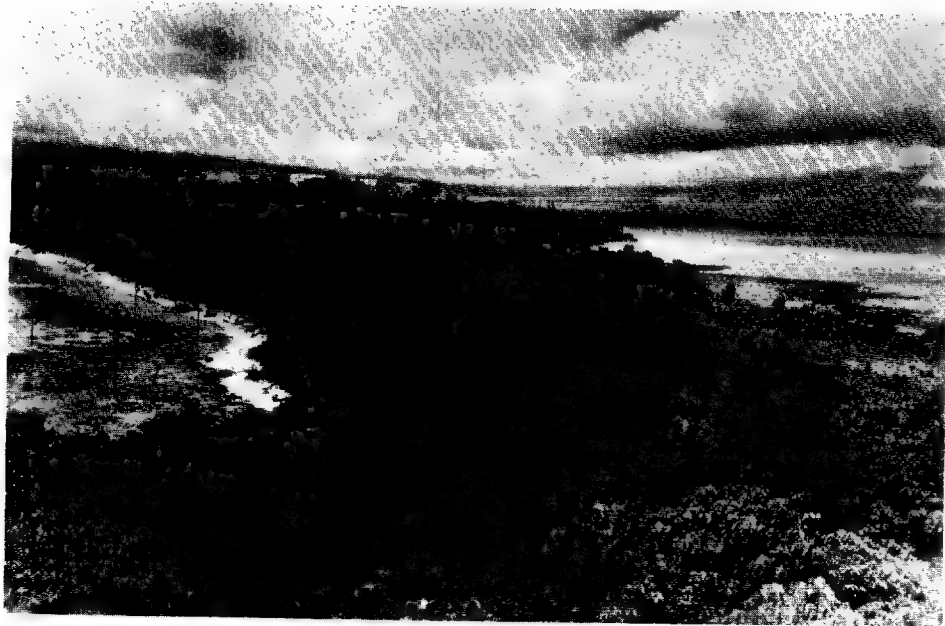


Figure 36. Southwestern Morotai. Only extensive level area on the island. It is here that most of the people live. The rest of the island is rugged and covered with luxuriant forest.

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Most of the streams on Halmahera are swift, turbulent, and shallow, and they flow in narrow V-shaped valleys. They tend to widen and become less turbulent when crossing coastal plains, but few are navigable for more than a few miles inland. The northern peninsula has many small lakes, but they are less numerous elsewhere on the island.

Dense primary evergreen forests cover most of Halmahera, with a secondary growth of grassland, thicket, and some trees prevailing on much of the lowlands and adjacent lower slopes. Small areas of grassland in the lowlands could be used for drop zones. Many of the coastal areas are swampy, some with mangrove, especially near river mouths. Rice, sago palm, and vegetables are commonly grown in the lowlands as subsistence crops, and coconut and nutmeg are grown commercially.

Morotai, the northernmost of several significant islands that lie off the north and west coasts of Halmahera, is an elliptical island of approximately 1,500 square miles. Most of Morotai is high and rugged. Maximum elevations of approximately 4,100 feet occur in the south; elevations as high as 3,480 feet occur in the north. Mountain spurs extend close to the sea in both the east and west, and coastal plains, on which most of the people live, are narrow. The only extensive plains area is in the southwest. Morotai has numerous rivers, some of which are navigable by small craft. Dryland evergreen forests cover most of the island, except for the more heavily populated parts, which are intensively planted with rice and coconut palms. The entire south coast of Morotai is fringed by a wide coral reef, and similar barriers extend along much of the north coast and part of the east coast.

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Many small islands, interconnected by coral banks, lie off the west coast of Morotai. Rau, the largest and northernmost, is about 2 miles from the main island. A coral bank that stretches south from Rau through the smaller islands, makes passage between Morotai and Halmahera hazardous.

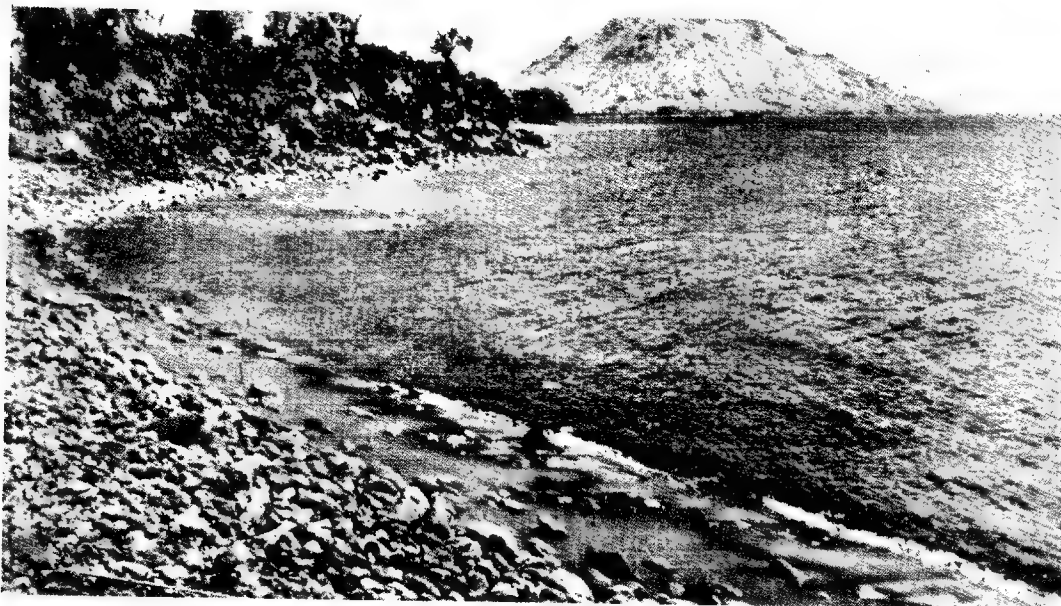
Ternate lies off the west coast of Halmahera. This circular island, approximately 6 miles in diameter and roughly 25 square miles in area, is one of the most densely populated of the Moluccas. The island is formed almost

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Figures 37 & 38. Ternate. Two views of shoreline. Beaches on the island are narrow, often rocky, and backed by steep slopes which rise to a single volcanic peak. Ternate, the major port of the northern Moluccas, is situated along a beach on the eastern side of the island. The small conical island of Hiri (lower photo) rises abruptly from the sea.



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entirely by an active volcano that rises over 5,600 feet above sea level. Most of the shores are rocky, but there are short sandy stretches in the southeastern part of the island. Low bluffs and steep rocky hills back most of the beaches. The northern half of the island contains many barren tracts of land across which lava has flowed. The western slope descends abruptly to the sea, but the other slopes are more gentle. Lowlands, generally narrow and restricted to coastal areas, are most extensive on the northern and eastern sides of the island. There are no major streams on Ternate. The island is densely forested, but in the south much of the land up to 4,500 feet above sea level is cultivated. A number of plantation crops are grown, including coconuts, coffee, cloves, and nutmeg.

Tidore, slightly more than a mile southeast of Ternate, is oval shaped and contains approximately 25 square miles. Like Ternate, it is quite densely populated. The southern part of Tidore is entirely occupied by a dormant volcanic peak 5,760 feet in height. The northern half of the island, though lower in elevation, is very rugged and includes many steep-sided hills that descend abruptly to the sea along the north coast. The only extensive lowlands, those occurring along the east and west coasts, tend to be swampy along their seaward margins.

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There are some sandy beaches, especially along the southeast coast. Most of the streams of Tidore are too shallow and turbulent to be of any navigational significance. The island is heavily forested, but some of the mountain slopes are cultivated up to elevations of 1,000 feet. Subsistence and commercial crops are similar to those on Halmahera.

Mare, Moti, Makian, and Kajoa, all small islands, extend almost directly south from Tidore. The northern three are volcanic and very rugged, with few lowlands; but Kajoa, the southernmost, has gentler relief, and lowlands are more common. These islands are covered with evergreen forests. Landing beaches can probably be found on all of the islands, but most coastal approaches are encumbered by offshore reefs.

Batjan, Kasiruta, and Mandioli are the most significant of a number of islands to the west and south of Kajoa. Batjan, the largest, consists of three mountainous sections connected by narrow isthmuses. The highest elevation, about 6,920 feet, is in the central section. The isthmuses are the most prominent lowlands on the island. Smaller lowlands border coastal areas and some of the larger streams. The rivers of Batjan can be navigated only by small craft. The island is

S-E-C-R-E-T

heavily forested, especially in the interior. Fresh-water swamp forests are extensive in the northwest part of the northern section and in the western part of the central section. Cultivated areas are most extensive across the northern isthmus. Sandy beaches occur on all coasts.

Kasiruta and Mandioli lie off the west coast of Batjan. Kasiruta is rugged and heavily forested, with few lowlands. A few streams penetrate deeply inland, but they are of no navigational significance. Although small isolated beaches can be found, most approaches to the island are made hazardous by reefs and shoals. Mandioli is smaller than Kasiruta, and its topography tends to be more gently rolling.

3. Obi Islands

The sparsely populated Obi Islands lie between Halmahera and Ceram. Obi, the largest island in the group, is roughly 50 miles long and 27 miles wide and is generally hilly to mountainous. The highest peak, roughly 5,000 feet, is in the center of the island. The forest-covered mountains drop abruptly to the sea in the west and northwest but descend more gradually elsewhere to narrow coastal plains.

A few rivers descend rapidly from the highlands to the sea, but their mouths are blocked by sandbars, and they can be entered only by small boats.

4. Sula Islands

These three large islands -- Mangole, Taliabu, and Sanana -- lie almost due west of the Obi Islands; they are sparsely populated. Mangole and Taliabu are narrow, east-west trending, hilly to mountainous islands. Sanana, also narrow, trends north-south at right angles to Mangole. The most extensive lowland in the Sula group is at the eastern end of Taliabu. The rivers of the Sula Islands are generally too turbulent and strewn with obstructions to be of navigational use. Dryland evergreen forests are predominant, but there are extensive areas of swamp forest along the coasts of Taliabu and Mangole, and much of Sanana is planted with tree crops. Numerous small sandy beaches are found along the north and

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25X1 south coasts of Taliabu and Mangole. [REDACTED]

5. Buru

Buru, an oval-shaped island with an area of roughly 3,400 square miles, is approximately 45 miles southeast of the Sula Islands. Most of Buru is very mountainous; the highest peak is nearly 9,000 feet in elevation. In many places the mountain slopes reach the sea, but toward the north and east they descend gradually to a zone of gently rolling hills. The largest plain, which supports the major concentration of population on Buru, is centered on the mouth of the Wai Apu, on the east coast. This plain is extensive and tends to be swampy. Smaller plains fringe the mouths of other rivers and coastal areas. Only the Wai Apu is navigable for any appreciable distance. Dryland evergreen forests are the dominant vegetation on Buru, but grasslands are common in the northern hill country and in the plains. Swamp forests, both mangrove and freshwater, also are common along the north and east coasts. Commercial tree crops are cultivated on the north coast; subsistence agricultural plots are generally found only on the lowlands. [REDACTED]

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6. Ceram (Seram) and Associated Islands

Ceram, the largest of the Molucca Islands, is a lightly populated, east-west trending island roughly 215 miles long that has an area of approximately 6,600 square miles. The island is indented by three large bays in the south and one in the north. The extreme western part of the island is formed by an irregularly shaped peninsula, joined to the main part of the island by a low, narrow isthmus.

Ceram is predominantly mountainous, with the highest peak, nearly 10,000 feet in altitude, located in the central part of the island. The western and central parts of the island are the most rugged; eastern Ceram consists of gently rolling hills. The mountains descend abruptly to the south coast but slope more gradually to the north. The coasts are generally low in the north and east but high in the south and west. Sandy beaches are numerous. The major lowlands of Ceram include the isthmus between the western peninsula and the mainland; a northern coastal plain that gradually widens to the east; an eastern plain that extends inland

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Figure 39. Buru. Mountainous island with steep slopes that commonly reach the sea. Most of the people live in villages along narrow coastal strips, such as the one in this photo.

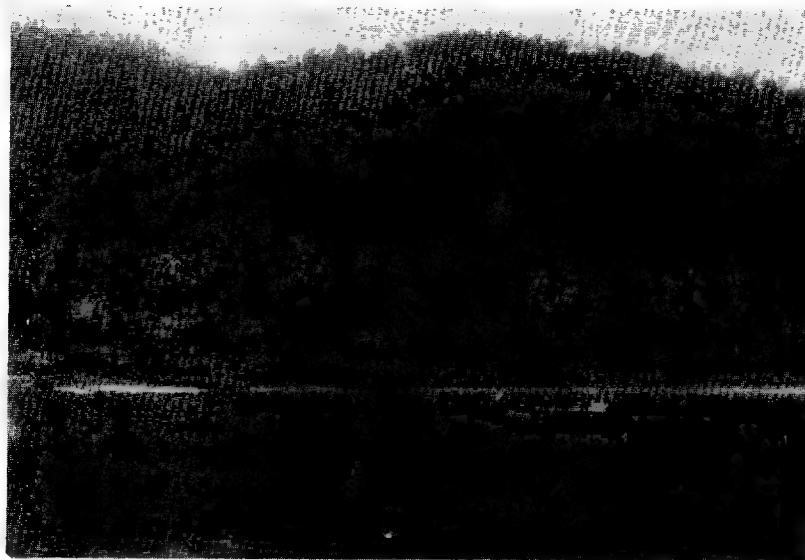


Figure 40. Ceram. Coastline along southwestern part of island. The south coast is commonly backed by steep slopes, whereas in the north, coastal plains are extensive.

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along several rivers; and numerous river valleys that lead inland from the mountainous south coast. The rivers of Ceram may become turbulent during wet weather (the northern part of the island receives most of its rain during the northwest monsoon; the southern part during the southeast monsoon). The largest rivers are navigable by small craft for short distances. Many rivers become waterless during their respective dry periods. Most of Ceram is densely forested with dryland evergreens, but grasslands are common in the drier areas, especially on the plains. Swamp forests dominate many coastal areas. Commercial agriculture is not highly developed in Ceram, but subsistence plots are common in the lowlands.

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Boano, Kelang, and Manipa, small mountainous islands, lie off the west coast of Ceram. 25X1

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Lowlands are confined to coastal areas or to the narrow valleys of the short, unnavigable streams. Dryland evergreen forests cover the islands, except for the northeastern part of Boano where some grassland is found.

7. Ambon Islands

The Ambon Islands lie off the southwest coast of Ceram. Amboina,* the largest of the group of four islands and the most densely populated, is composed of two east-west trending mountainous peninsulas connected by a narrow isthmus; thus the island is indented by two large bays, around which the population is concentrated. The northern peninsula is the larger and more rugged of the two and has the highest peak, which is about 3,400 feet above sea level. Most of the few level areas are on the east coast and along the shores of the two large bays. There are many streams, but few are

* Although both the main island of the island group and the main town on the island are now officially called Ambon, the older Dutch name "Amboina" is used throughout this handbook.

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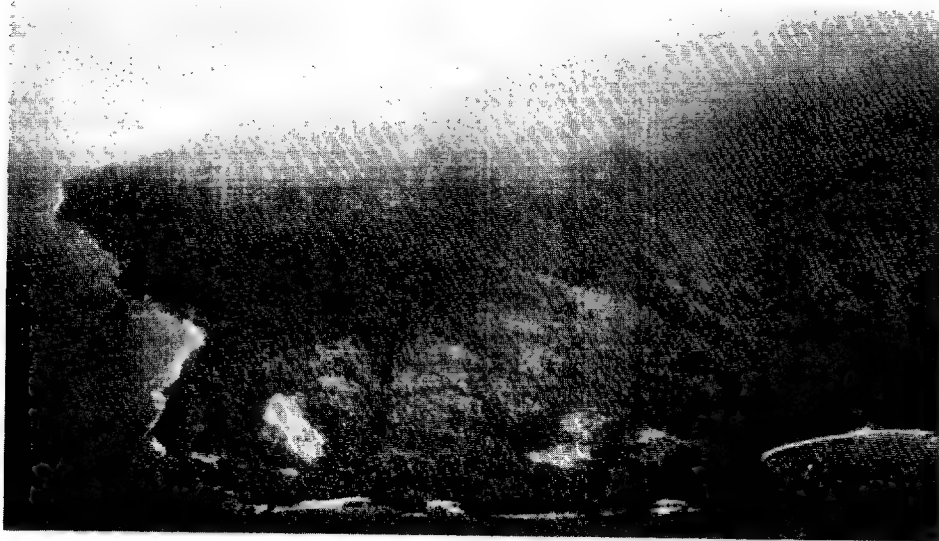


Figure 41. Amboina. Heavily wooded part of island.

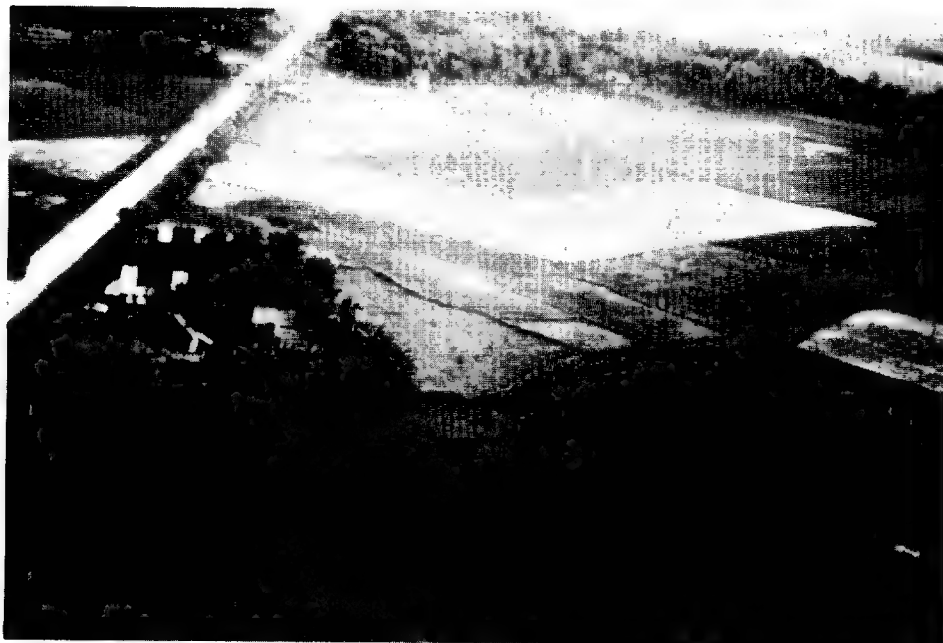


Figure 42. Amboina. Cultivated plots with irrigation canal (at left). Although much of Amboina is heavily wooded, extensive cultivated areas such as this are found along coastal stretches, particularly along Amboina Bay.

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navigable. Most of Amboina is forested, but the western part of the northern peninsula contains grasslands. Coastal areas are generally cultivated. Scattered sandy beaches, separated by rocky cliffs or swamplands, occur on all coasts, but they are found in the greatest numbers on the shores of the two large bays. Amboina Bay forms an exceptionally good harbor, and Amboina, the principal port of the Moluccas, is situated along the southeast shore of the bay.

The three islands to the east -- Haruku, Saparua, and Laut -- are generally less rugged than Amboina and none of their peaks exceed 2,000 feet. Lowlands are found in northern Haruku, western Saparua, and most of the coastal areas of Laut. 25X1

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[REDACTED] 25X1
[REDACTED] Dryland

evergreen forests cover most of the three islands, although grasslands are extensive on northern Haruku. None of the islands is extensively cultivated, but occasional coconut groves are found in sandy coastal areas. The streams are not navigable.

8. Minor Islands of the Northern Banda Sea

The Banda Islands, Gorong Islands, and Watubela Islands, as well as numerous small islands and other island groups, lie between Ceram and the islands of the southern Moluccas. Most are hilly to mountainous, densely forested, and fringed by coral reefs.

9. Kai (Ewab) Islands

The Kai Islands include 46 small islands, of which Nuhutjut (Kai Besar) and Nuhurowa (Kai Ketjil) are the largest. Nuhutjut, the most populous of the group, is a north-south trending island roughly 50 miles long and from 2 to 10 miles wide. It has an irregular coastline that rises abruptly from the sea. A mountain range with elevations 2,600 feet above sea level traverses the length of Nuhutjut. Most of the other islands are gently rolling and rarely exceed 500 feet in elevation. Dryland evergreen forests predominate, but there are large areas of secondary forests interspersed with cleared areas, grasslands, and native gardens. The streams are small and generally without water during the dry season. Sandy beaches occur throughout the islands. Coastal approaches are generally hazardous, except along the east coast of Nuhutjut.

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10. Aru Islands

The Aru Islands, between the Kai Islands and West New Guinea, include five large islands and numerous smaller ones, all sparsely populated. The major islands are separated by narrow tidal channels. Most of the islands are flat and have relatively low reef-fringed shores of sand, mud, or rocks. The southernmost island, Trangan, however, has stretches of steep coast backed by undulating country with elevations up to 300 feet in its southern half. Evergreen forests are predominant on all the islands except Trangan, where the vegetation consists mostly of grasslands with scattered trees. The coasts of many of the islands are bordered by dense swamp forests, including mangrove. Streams are small and may run dry between April and October. The most extensive stretches suitable for amphibious landings are on the south and west coasts of Trangan. Short, isolated beaches are also found on the western sides of the other islands.

11. Tanimbar Islands

The Tanimbar Islands consist of 66 lightly populated islands, of which Jamdena (roughly 25 by 75 miles) is by far the largest. Their surfaces are low and undulating, rarely rising above 300 feet. Dryland evergreen forests predominate, but swamps are common, particularly in western Jamdena. There are patches of grassland containing scattered trees on the smaller islands of the group. The best beaches of Jamdena are on the west coast, where flat to undulating plains back the shores. Coral reefs make coastal approaches to the islands generally hazardous.

12. Wetar and Minor Islands of the Southern
Banda Sea

Two lightly populated island chains lie between the Lesser Sundas and the Tanimbar Islands; the southern chain extends from Timor to the Tanimbar Islands and the northern chain extends northeastward from Alor Island. The islands that form these two chains are more like the Lesser Sundas than the rest of the Moluccas 25X1

25X1

Wetar, the largest by far of the islands of the northern chain, has an area of 1,200 square miles. Except for narrow coastal plains where the sparse population is concentrated, the island is mountainous. There are two major summits on the island, the highest of which rises to about 4,600 feet. Most of the coastal plains are backed by steep cliffs and

S-E-C-R-E-T

S-E-C-R-E-T

are often swampy, particularly along the north coast. Streams are numerous, but they normally are dry during the southeast monsoon. A relatively large lake is located in the eastern third of the island. As in the Lesser Sundas, grasslands are the dominant natural vegetation. Evergreen forests, with eucalyptus trees predominant, grow at the higher elevations; deciduous forests cover some of the lower slopes. Most of the cultivated land is on the coastal lowlands. 25X1

25X1

Romang and Damar, the only other significant islands of the northern chain, are volcanic in origin and generally rugged, although there are some lowlands in western Damar. The southwestern part of Romang is wooded, but the remainder is covered by grass. In contrast, the southern two-thirds of Damar is grassland and the remainder is forested. The coasts are generally precipitous, but there are some sandy beaches.

Moa and Babar are the two largest islands of the southern chain. Moa has a gently rolling interior limestone plateau, with hills on its eastern and western ends that attain heights of about 1,200 feet. Cogon grass is the dominant vegetation of Moa, but the hills are partially wooded. The central section of the island tends to be marshy and is thickly covered with sago palms. The coasts are steep and some coastal approaches are obstructed by fringing reefs. Babar, circular in shape, is rugged in the eastern half but generally low in the western half. Higher elevations are covered by evergreen forests, while the lower elevations are mostly in grass. Sandy beaches are available, but fringing reefs are common.

E. West New Guinea (Irian Barat)

See Figures 43 through 57.

1. West New Guinea

The Indonesian part of New Guinea is more than twice the size of Celebes and three times the size of Java. It is shaped like the upper part of a bird, with the Vogelkop (meaning birdhead in Dutch) Peninsula forming the head and the mainland forming the body. Much of the approximately 160,000 square miles of territory remains unexplored and undeveloped.

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a. Terrain

West New Guinea consists of nearly equal areas of mountains and plains. An extremely high mountain system, with elevations up to 16,000 feet above sea level and consisting of the Central Mountain Range and the Northern Mountains, dominates the northern half of the mainland and extends northwestward to form the Vogelkop. 25X1

25X1
Between the Central and Northern Mountains lies a long, low basin called the Meervlakte Depression. Narrow coastal lowlands lie between the Northern Mountains and the sea; south of the Central Mountain Range a vast swampy plain occupies the southern half of the mainland. Terrain and vegetation would limit cross-country vehicular movement to a few locally favorable places; foot travel would be arduous in almost all parts of West New Guinea. For an insight into the rigors of travel, Headhunters of Papua by Tony Saulnier is recommended.

1). Central Mountain Range

The Central Mountain Range of West New Guinea extends from the Vogelkop into Australian New Guinea. The central massif comprises several individual systems that together form a formidable barrier to north-south travel.

On the Vogelkop the mountains descend abruptly to the sea along most of the northern coast, but slopes are more gradual toward the south. The range consists of east-west trending parallel ridges, several of which exceed 8,000 feet in height. The mountains are quite rugged, especially in the limestone areas to the west, where sinkholes, caves, and steep-sided valleys are common. Except for a few minor coastal lowlands, the terrain of the entire isthmus that connects the Vogelkop and Bomberai peninsulas to the mainland is mountainous.

On the mainland, the mountains are characterized by high elevations, very steep slopes, sharp crests, and deep gorges. Local relief is well in excess of 2,000 feet throughout most of the range. Many peaks are over 12,000 feet, and a few are over 15,000 feet. The Central Mountain Range slopes steeply toward the Southern Lowlands, and the southern flanks of the mountains are cut by deep river gorges.

2). Meervlakte Depression

The Meervlakte Depression is a low, flat intermontane

S-E-C-R-E-T

S-E-C-R-E-T

valley between the Central Mountain Range and the Northern Mountains. The depression, roughly 45 miles wide and 225 miles long, lies less than 200 feet above sea level and is swampy. The Tariku and Taritatu Rivers, which join to form the north-flowing Mamberamo River, drain the area. Much of the depression is inundated during the wet season, and cross-country movement on foot would be impossible. Even during the dry season, cross-country movement may be hindered by moist ground.

3). Northern Mountains

This chain of relatively low, rounded mountains parallels the Meervlakte Depression on the north, extending from Sarera Bay (Geelvink Bay) in the west to the eastern border and beyond. Crests average 3,000 to 5,000 feet above sea level and in places exceed 7,000 feet. Local relief and slope are usually less than in the Central Mountain Range, and cross-country movement accordingly would be less arduous.

4). Northern Coastal Lowlands

The lowlands are narrow on the Vogelkop, but broaden on the mainland, especially where major streams enter the sea. These flat to gently rolling coastal plains do not exceed 50 miles in width and are generally less than 10 miles wide. Swamps are common. The northern lowlands are the most densely settled and most developed region of West New Guinea. Villages are scattered along the coast and for short distances up the rivers.

5). Southern Lowlands

The Southern Lowlands extend across the southern portion of the Vogelkop and across the southern half of the mainland into Australian New Guinea. In the west, the lowland area is a relatively narrow coastal zone; but in the east it is much broader, and the great delta plains of the Digul and Baliem Rivers form one of the most extensive swampland areas in the world. The uniformly flat character of this swampy plain changes somewhat east of the Digul River, where a low plateau, seldom more than 150 feet above sea level, extends eastward into Australian New Guinea.

b. Drainage

Drainage characteristics vary greatly throughout West New Guinea. In the mountains, streams flow primarily in deep V-shaped valleys. Currents are swift and turbulent,

S-E-C-R-E-T

S-E-C-R-E-T

especially during and after heavy rains. Rapids, waterfalls, and boulder-strewn channels are common. Navigation, even by raft, may be virtually impossible at all times. The few existing bridges are rickety and may be swept away during flash floods. Stream crossing may prove to be the most serious problem confronting the traveler. In less rugged areas, streams flow in wider channels between moderately high banks. Streams are often clogged with gravel and debris where they emerge from the highlands onto more level terrain. Locally, stream channels form broad meanders which often shift after floods. In areas of low elevation, such as the Southern Lowlands, streams are wide and deep and meander sluggishly across nearly level plains between low, muddy natural levees of clay and silt. [REDACTED] 25X1

[REDACTED] Streams usually reach the sea through broad, deep estuaries, commonly obstructed by sand-bars deposited at their mouths. Small creeks often interconnect the estuaries of major rivers.

Drainage features of the limestone areas, principally on the Vogelkop, differ markedly from the usual pattern. In such areas, streams may flow underground for varying distances, disappearing and reappearing at intervals. Shallow lakes are numerous in limestone areas, as are sinkholes and caverns. [REDACTED] 25X1

Stream levels are high from December through May and only slightly lower from June through November. Streams that drain the snowfields of the Central Mountain Range maintain constant water levels throughout the year.

Swamps and marshes are widespread throughout the low-lying portions of West New Guinea. Tidal flooding occurs along the coast and behind the discontinuous low natural levees that border the lower courses of main streams. On the Digul River, for instance, tidal influences are noted nearly 250 miles upstream, and tides daily inundate large areas along the river. Flooding by fresh water occurs above the advance of tidal water, for the tides cause the normal flow to back up and overflow the banks. In a number of swampy areas, shallow lakes [REDACTED] occupy depressions. The largest of these lakes, 9 miles long and 4 miles wide, is located along the lower stretches of the Mamberamo River. In the less rainy parts of southern West New Guinea and central Dolak Island (Frederik Hendrik Island) large areas of swamp and marsh become dry from June through November, and the rigors of cross-country travel may be eased accordingly.

S-E-C-R-E-T

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Most rivers on the Vogelkop and Bomberai peninsulas are short, turbulent, and of little use for navigation, but several significant streams flow across the mainland. Except for the Mamberamo, the rivers crossing the north coast are short. The Mamberamo drains the swampy Meervlakte Depression and flows northward through a deep gorge in the Northern Mountains. Vessels drawing 8 feet can go up the river for nearly 100 miles. Of the rivers flowing toward the south, the Digul, Baliem, Lorentz, and Otakwa can be navigated by light craft for considerable distances above their mouths. The Digul, for example, can be navigated 400 miles upstream by vessels drawing 6 feet. Travelers in the Southern Lowlands must, of necessity, use river craft; and because of shifting channels and numerous navigational hazards, experienced pilots would be required.

c. Vegetation

Roughly 85 percent of West New Guinea is covered by dense evergreen forests, including both primary and secondary forests as well as freshwater and mangrove swamps. Forests diminish in both height and density as altitude increases, until nothing but scrubby growth remains above 12,000 feet. Undergrowth is likely to be dense and a serious deterrent to movement, particularly where the forest is relatively open; this situation is most frequent above 4,000 feet.

Impenetrable mangrove swamps are extensive along the coasts, especially in the south, and along large rivers for considerable distances inland. Extensive areas of freshwater swamp back many of the mangrove swamps and occupy river basins in the interior. Marshes are widespread in interior river basins such as the Meervlakte Depression. Grasslands cover extensive areas in West New Guinea up to 8,000 feet above sea level. Grass is common in much of the Central Mountain Range, in small areas in the eastern part of the Northern Mountains, in the Bomberai and Vogelkop peninsulas, and in the southeastern part of the Southern Lowlands.

d. Coasts

The coasts of West New Guinea vary widely in physical characteristics. From the southeastern boundary to the isthmus between the Bomberai Peninsula and the mainland, the coast is uniformly flat and generally covered with a dense growth of mangrove. Coastal approaches are difficult because of numerous shoals and mudflats. The south coast of

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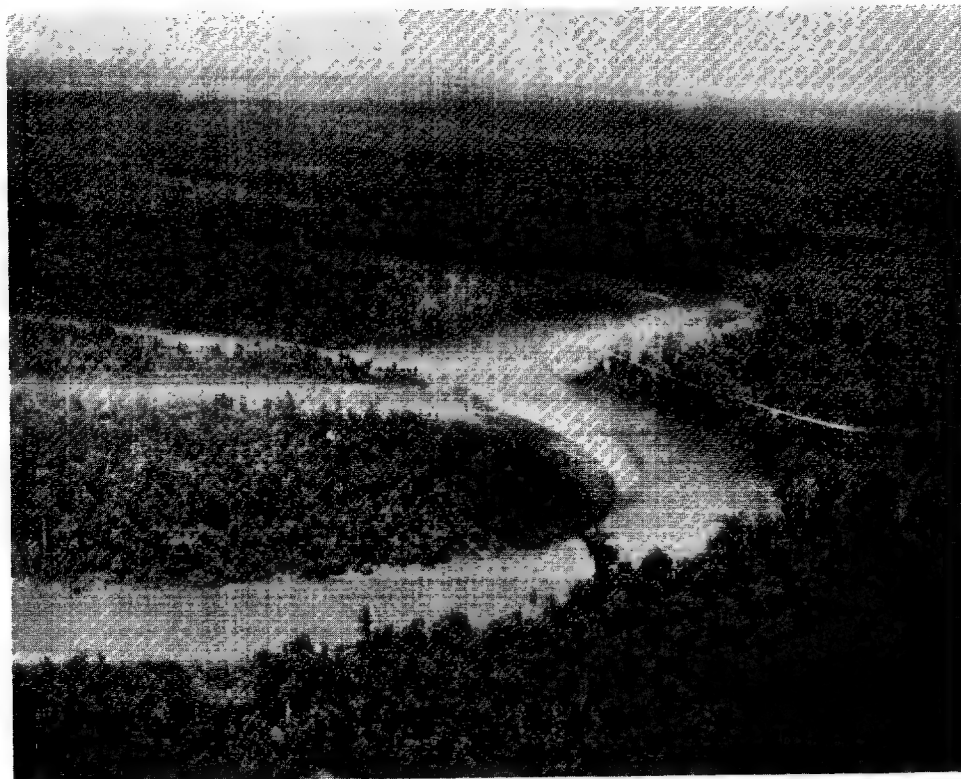


Figure 43. West New Guinea. Stream in lowland area of Vogelkop, near Steenkool. Rivers offer the only feasible means of penetrating the swamp forests that prevail in the southern part of the Vogelkop and the southern half of the mainland.

S-E-C-R-E-T

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Figure 44. West New Guinea. North coast near Sukarnapura. Good sandy beaches such as this are sprinkled along the eastern part of the north coast, but they are commonly backed by steep slopes that make movement into the interior difficult.

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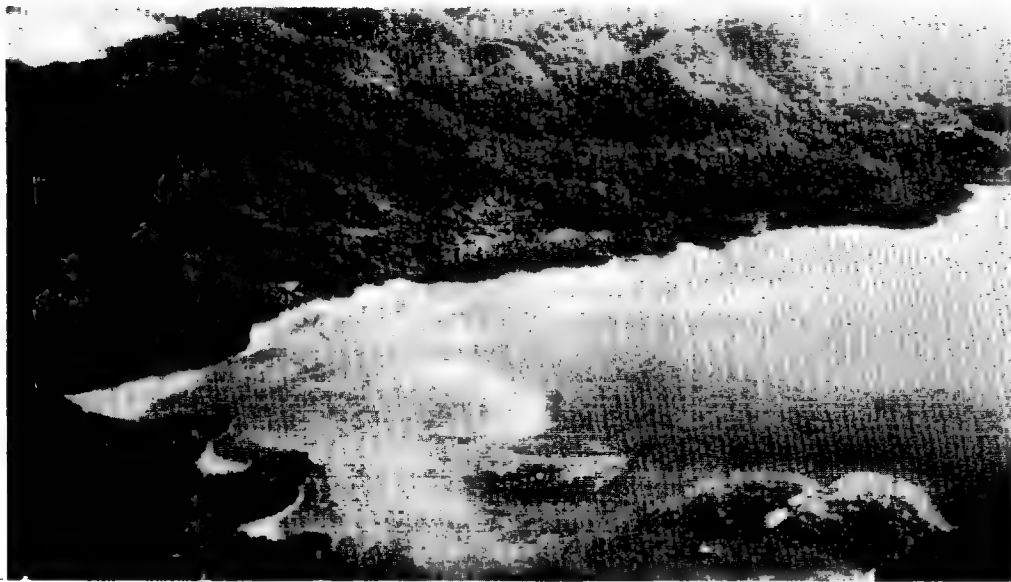


Figure 45. West New Guinea. Bay west of Sukarnapura. Coastal indentations may offer vessels protection from foul weather, but many, such as this one, are fringed with reefs along the shore.

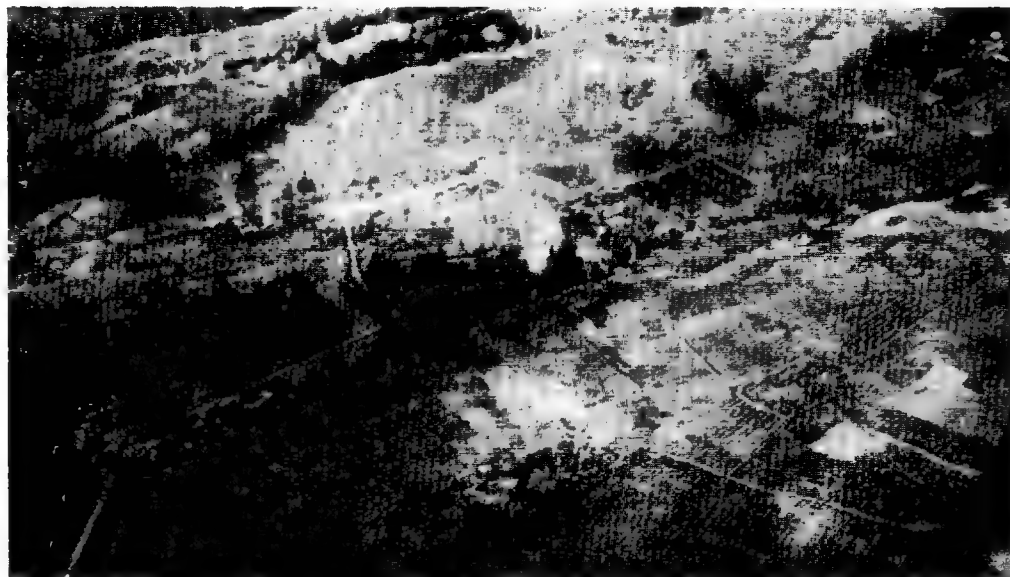


Figure 46. West New Guinea. Baliem Valley in southern part of Central Highlands. This is one of the few areas in West New Guinea where a relatively highly developed sedentary type of agriculture is practiced.

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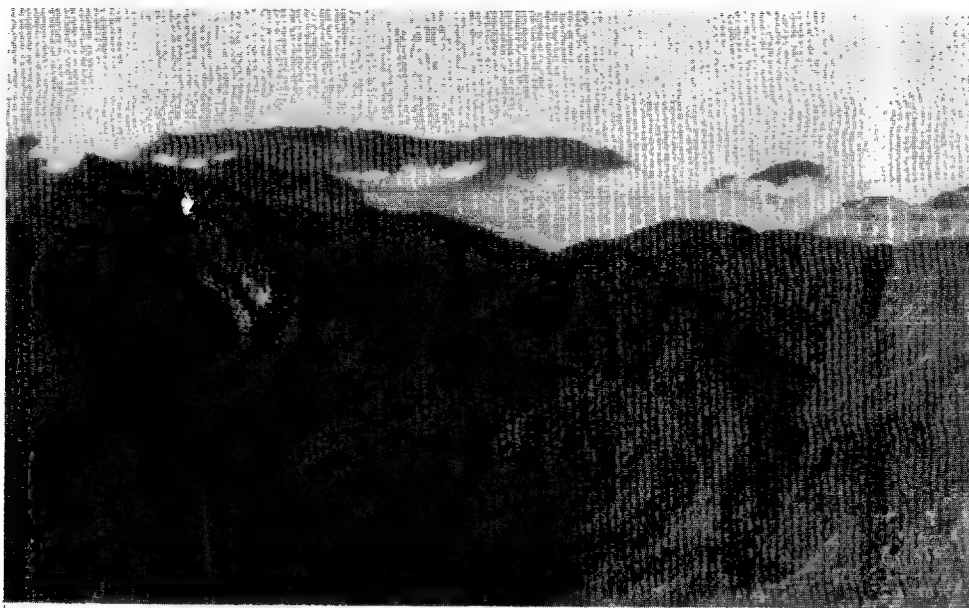


Figure 47. West New Guinea. Heavily forested northern slopes of the Central Mountain Range. Travel through such terrain would be extremely difficult.

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Figures 48 & 49. West New Guinea. Two rivers flowing through relatively flat valleys in Central Highlands. Only in such valleys are the upland rivers navigable and, as indicated in the lower photo, swift currents may preclude use by most craft.

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Figure 50.
West New
Guinea.
Upper
stretch of
Baliem River.
As it flows
southward
through the
Central Mountain
Range the river
cuts deeply
into the
flanks of the
range, forming
a rugged V-
shaped valley.

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Figure 51. West New Guinea. Rugged, permanently snow-capped peak in Central Mountain Range.

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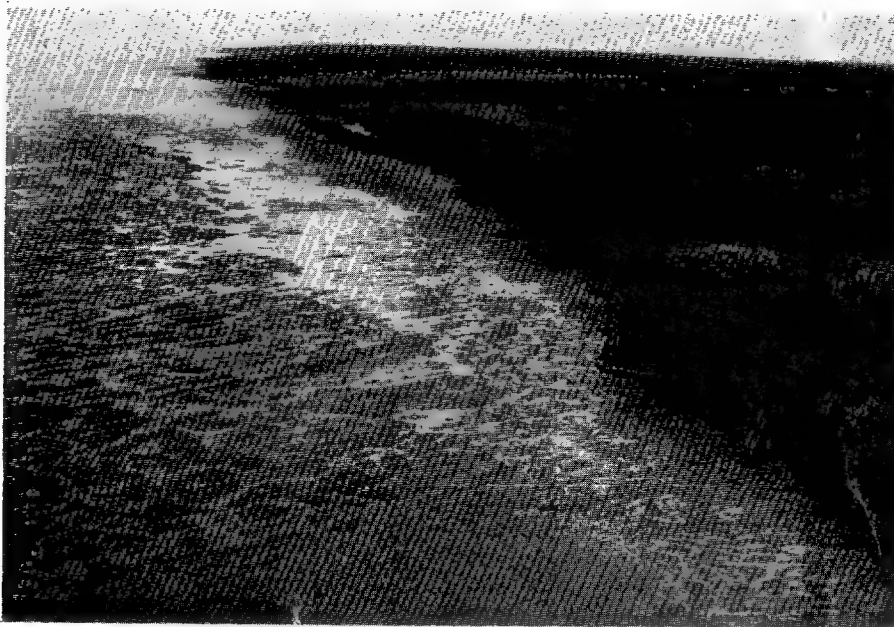
Figure 52. West New Guinea. Southern Lowlands. Note native village in the clearing cut from jungle at edge of river. Rivers provide the only routes across formidable lowlands; sharp bends and numerous shoals make experienced pilots essential. Local trails extend only short distances from the villages.

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Figures 53 & 54. West New Guinea. Two views of south coast. With few interruptions, impenetrable growths of mangrove, nipa palm, and other swamp trees line the coast. Exposed mudflats may extend more than 3 miles seaward at low tide.

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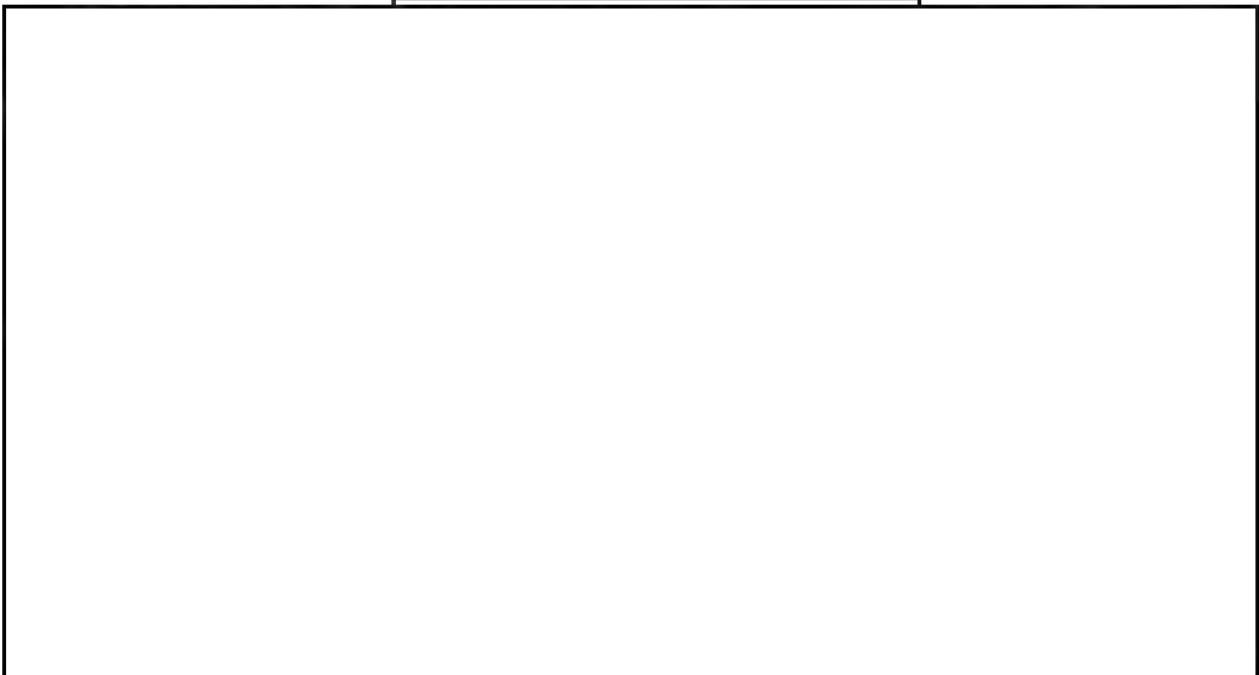
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the isthmus and the Bomberai Peninsula is deeply indented with numerous well-protected harbors suitable for anchorage, and the shores are backed by densely wooded hill country. The coasts surrounding Bintuni Bay -- the large embayment separating the two peninsulas -- and along the southern margin of the Vogelkop have the same monotonous low relief and dense cover of mangrove as the southern coast of the mainland. Almost the entire north coast of the Vogelkop is steep and backed by high mountains. The west coast of Sarera Bay is flanked by densely wooded mountains, but low, marshy shores edge the south and east coasts of the bay. The north coast of West New Guinea is low, except for a small stretch in the east near Sukarnapura where the Northern Mountains descend steeply to the sea.

Tidal currents and sea conditions are generally not severe around West New Guinea. These currents usually do not exceed 2-1/2 miles per hour, except at the mouths of large rivers. Waters off the north coast are generally more calm than those off the other coasts of West New Guinea. Waves in the Ceram and Banda Seas usually exceed 3 feet only at the height of the monsoons. The Arafura Sea is generally the roughest of the bodies of water that surround West New Guinea. It is most turbulent during the southeast monsoon (May through October), when squalls may develop. Reefs which hinder approaches are common off the north and west coasts but generally not elsewhere.

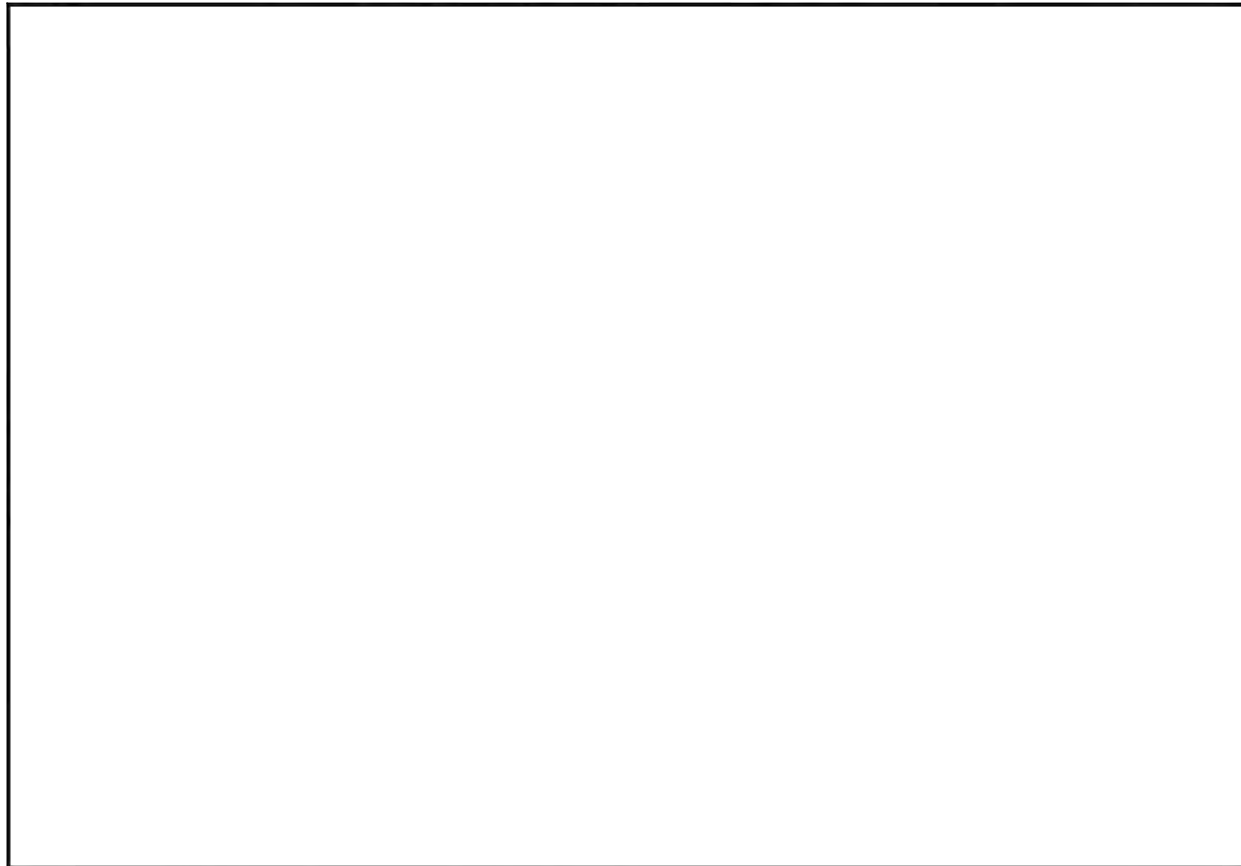
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2. Associated Islands

a. Schouten Islands

These Islands, the most northerly group lying in the entrance to Sarera Bay, include two main islands, Supiori and Biak, and many small islands. A very narrow tidal stream separates the two principal islands. The interior of Supiori is hilly and rugged, reaching a maximum elevation of 3,400 feet. The northwestern part of Biak is hilly, but the south-eastern portion is an extensive tableland. Both islands are largely covered by dense evergreen forests, with occasional patches of mangrove growing along their coasts. Most of the coast of Supiori is reef lined and is generally rocky and backed by cliffs, although portions of the south coast have low, muddy shores backed by dense mangrove and nipa palm growth. The entire coastline of Biak is reef fringed, rocky, and backed by rugged limestone terraces. The few accessible sandy beaches are backed by rugged terrain and dense vegetation.

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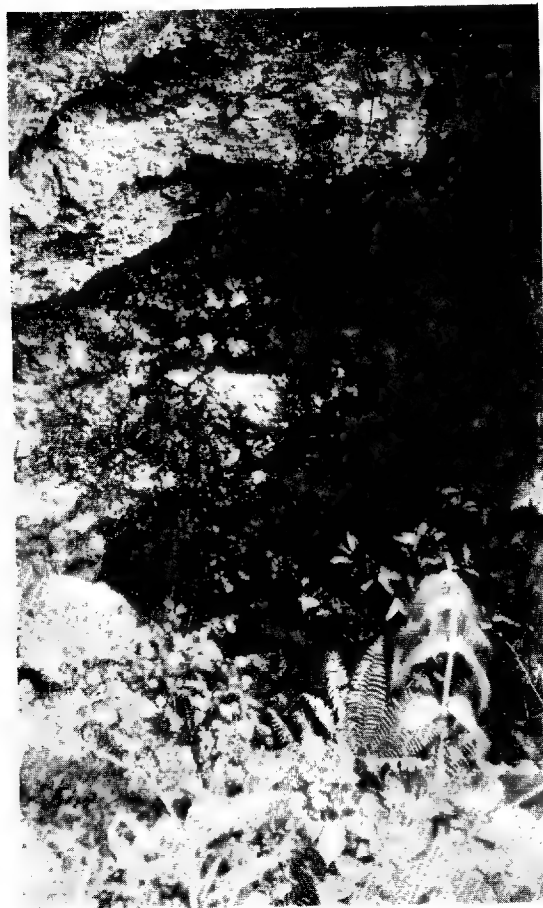


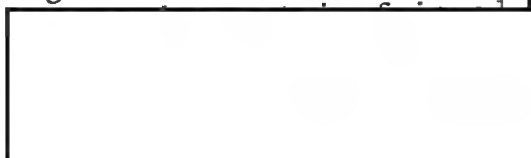
Figure 55. Biak. 25X1



Figure 56. Southern Japan.

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S-E-C-R-E-T

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b. Japen

Japen, which lies just over 30 miles south of Biak, trends east-west for roughly 100 miles and averages between 10 and 15 miles in width. A range of limestone mountains extends the length of the island and rises to elevations of 4,900 feet. [REDACTED] 25X1

[REDACTED] 25X1 There are no major streams. Evergreen forests cover most of the island, but fairly extensive areas of grassland occupy portions of the south coast. Although the north coast has generally clear approaches, the shore is rocky, steep, and backed by rugged terrain. [REDACTED] 25X1

c. Numfoor

This generally low island lies west of the Schouten Islands. Evergreen forests cover the highest elevations; lower elevations are covered by grassland that is inundated periodically. Offshore approaches are generally clear, but fringing reefs front many parts of the coast. The shores are rocky or sandy, and along some there are stretches of mangrove.

d. Waigeo

Waigeo is a rugged island roughly 80 miles long with a maximum width of 30 miles. The island is nearly bisected by a narrow bay that penetrates deeply into the south coast. Waigeo has steep, densely forested hills and mountains that reach over 2,500 feet in height. Offshore approaches are generally clear, but the coasts are mostly rocky and backed by rugged terrain. [REDACTED] 25X1

e. Batanta

This mountainous island lies south of Waigeo. It trends east-west for roughly 40 miles and is 4 to 8 miles wide. The densely forested mountains of Batanta rise to more than 3,500 feet. Approaches to the north coast are encumbered, but the south coast is mostly clear. Coasts are rocky and steep and generally backed by rugged terrain.

S-E-C-R-E-T



Figure 57. West New Guinea. Frederik Hendrik Island. Like the nearby areas of the mainland, this island is covered with impenetrable coastal swamp forest and grasslands and is extremely sparsely populated.

S-E-C-R-E-T

S-E-C-R-E-T

f. Salawati

Salawati lies directly south of Batanta and west of the Vogelkop. The island is generally low, although limestone mountains rise to slightly over 3,000 feet in the north. Most of northern Salawati is covered by a dense dryland evergreen forest, but the southern half contains extensive swamp forests. Coastal approaches are generally poor, especially in the narrow, islet-filled strait off the east coast. The coast tends to be rocky in the north but low, muddy, and mangrove clogged elsewhere. Most of the coast is reef fringed.

g. Misoöl

Misool, southwest of the Vogelkop, is an east-west trending island roughly 50 miles long and 20 miles wide. The northern portion of the island is generally low and flat, but in the south the highest parts of a range of hills are more than 1,500 feet above sea level. Dense evergreen forests dominate the island, although scattered patches of grassland occur in the interior. Approach to the north coast is encumbered by numerous offshore islands, but the south coast is generally clear. The north coast is low but rugged; the south coast tends to be rocky or cliffed. Coasts are generally backed by rugged terrain and dense forests.

h. Dolak Island (Frederik Hendrik Island)
and Komoran

25X1 These two islands are separated from each other and from the mainland by very narrow channels through which the tidal currents flow strongly. Both islands are low and poorly drained. Mangrove swamp forests backed by freshwater swamp forests dominate the coasts, and 25X1

[redacted]. The interiors of both islands are covered by grasslands that are subject to periodic inundation. They may be moist even during dry weather, thus making cross-country travel arduous.

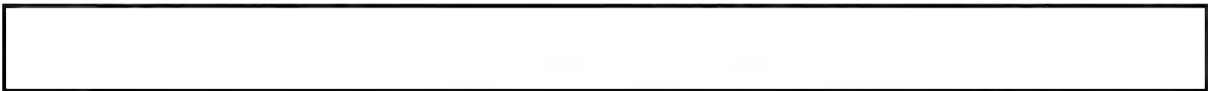
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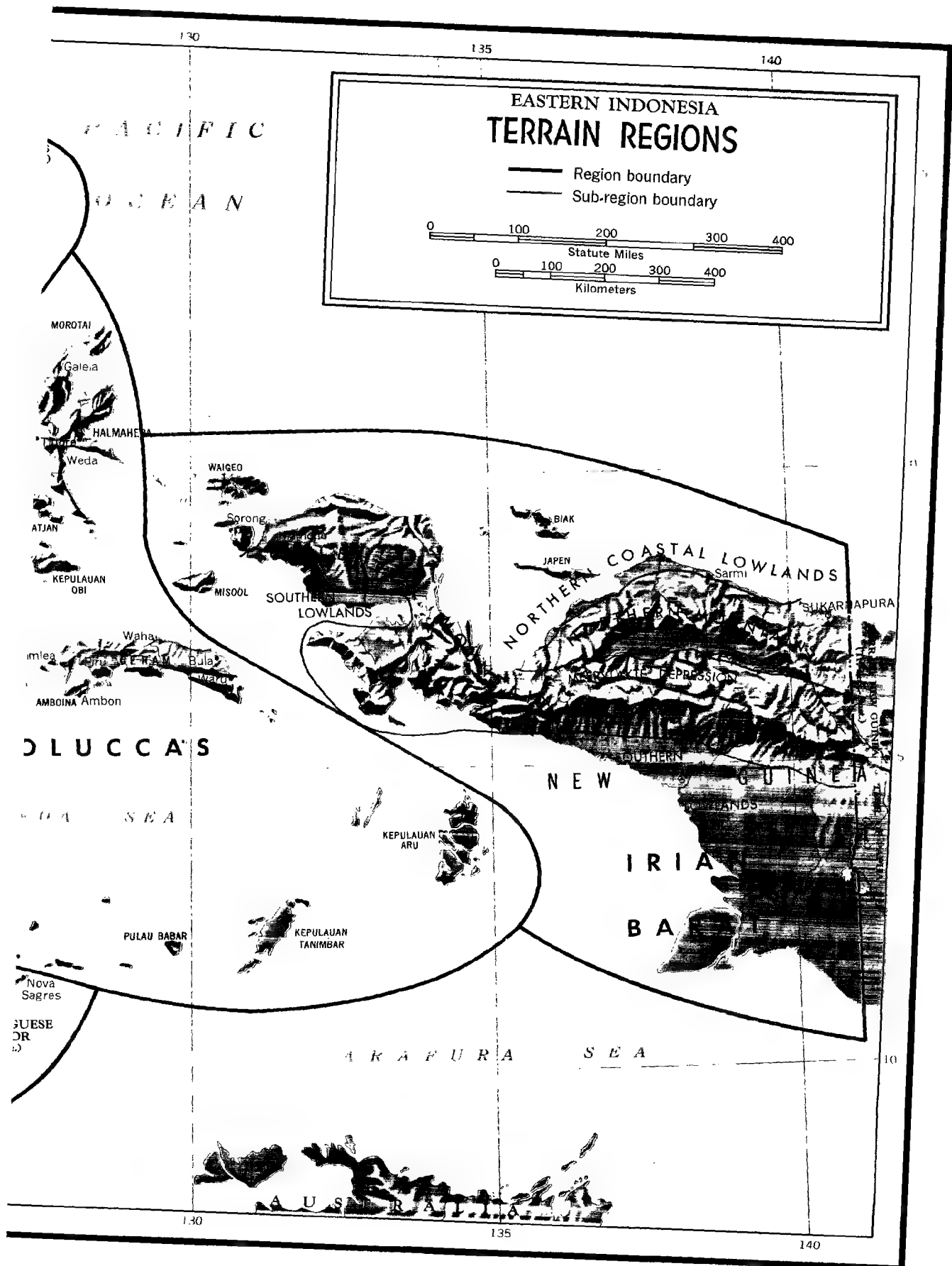


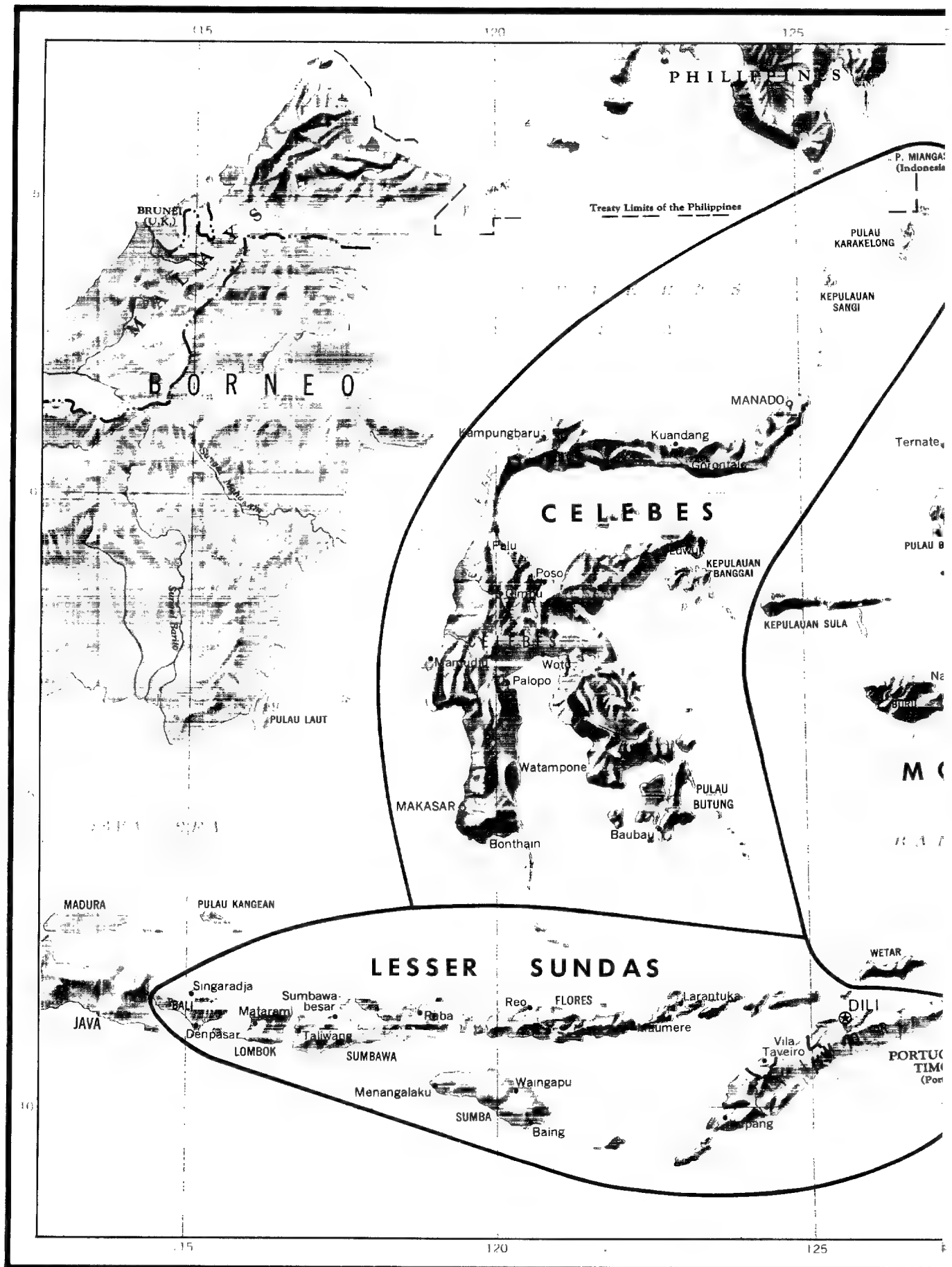
4. CIA. NIS 100, Indonesia, sec 21, "Military Geographic Regions," Apr 1956. C.
5. CIA. NIS 100, Indonesia, sec 22, pts 3-6, "Coasts and Landing Beaches," Feb 1954 - Jun 1955. C.
6. CIA. NIS 100, Indonesia, sec 23, "Weather and Climate," Feb 1954. C.
7. CIA. NIS 100, Indonesia, sec 24, "Topography," Jan 1956. 25X1 C.

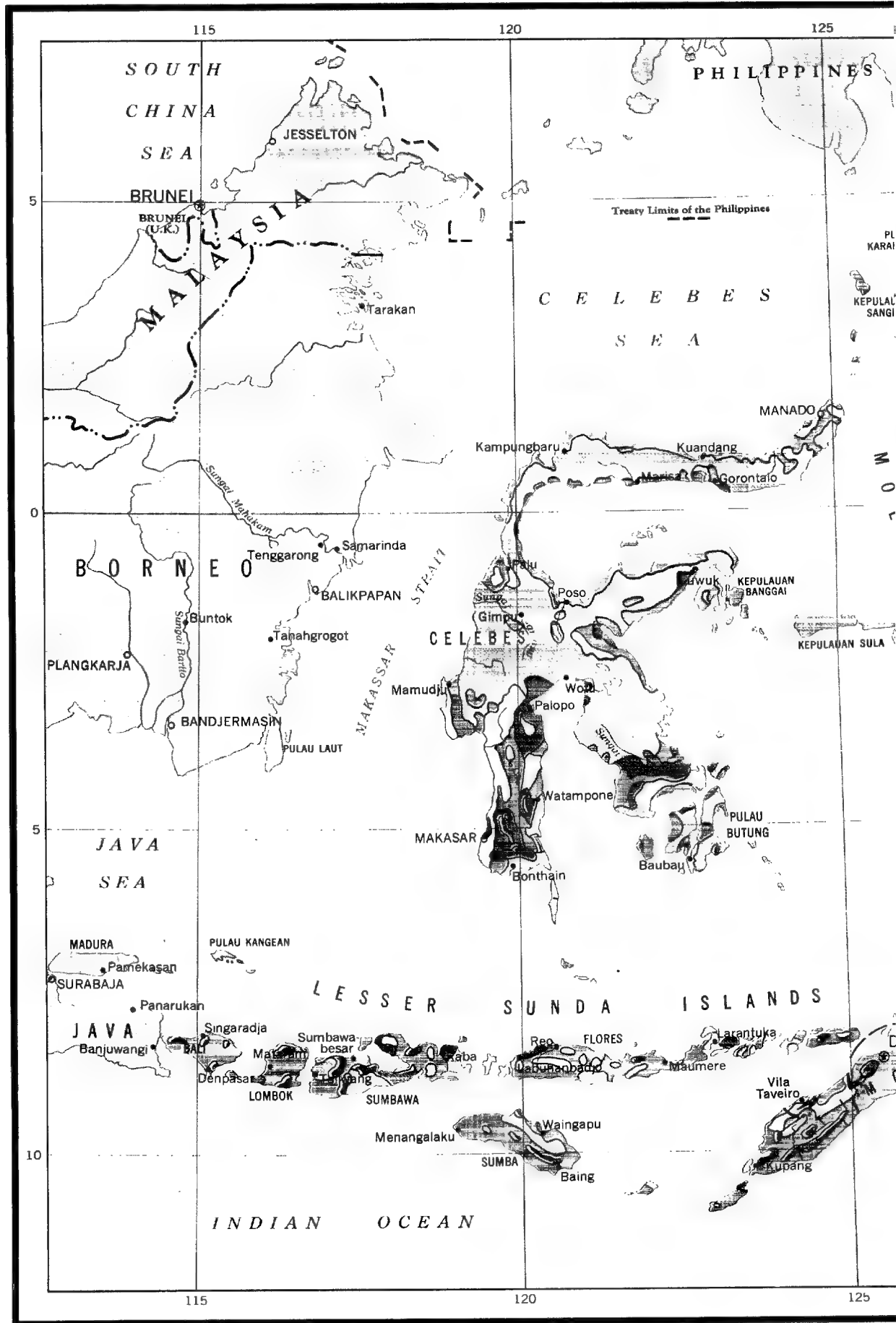


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IV. Population

A. Introduction

For purposes of this chapter, Eastern Indonesia is divided into four regions -- Celebes (Sulawesi), the Lesser Sunda Islands, the Molucca Islands, and West New Guinea (Irian Barat). (For regions and general reference, see Maps 51160 and 51156; for population density and ethnic groups, see Map 51158.) Peoples of West New Guinea are, for the most part, outside the Indonesian cultural realm; peoples of the other three regions have many cultural affinities not only among themselves but with many of the peoples of Java and the other western Indonesian islands as well. The discussion of a cultural facet of the peoples of one of the regions may, therefore, be pertinent to many of the peoples of the other regions including, in some instances, West New Guinea.

Available information on the peoples of areas such as the northeastern and southeastern peninsulas of Celebes, the eastern Lesser Sundas, most of the Moluccas other than Amboina, and much of West New Guinea is, at best, scanty. Therefore, in discussions of some of the peoples of these areas it has been necessary to extrapolate and generalize characteristics of a particular ethnic group from information available on peoples living in contiguous areas or on neighboring islands. Only for Celebes, where the religion, social organization, and political attitudes of the individual ethnic groups are distinctive, have individual groups been discussed. In the other three regions, even though the ethnic groups are many the cultural distinctions among them are not great (the Balinese and the Ambonese are noteworthy exceptions); and generally for these regions a "broad brush" treatment has been used. Where a cultural characteristic of an ethnic group deviates significantly from that of other groups in the region, however, that deviation has been noted.

B. Celebes

See Figures 58 through 69.

1. General

The population of Celebes, according to the 1961 census,

S-E-C-R-E-T

was 7,079,349. A breakdown of this figure by province is given below.*

<u>Province</u>	<u>Population</u>
Sulawesi Utara	1,310,054
Sulawesi Tengah	693,157
Sulawesi Selatan	4,516,544
Sulawesi Tenggara	559,594

There are few large cities on Celebes. The four largest in 1961 were Makasar (384,159), Manado (129,912), Gorontalo (71,378), and Pare Pare (67,992).

Most of the people live in coastal areas or in interior valleys. The overall population density in 1961 was 97 persons per square mile, but the people are distributed very unevenly. In the Makasar area at the southern end of the southwestern peninsula the population density is more than 300 persons per square mile, and in the Manado area near the end of the northern peninsula it is well over 100. Throughout the rest of the island, however, population densities are generally low, with much of the northeastern and southeastern peninsulas having fewer than five persons per square mile.

The ancestors of the present inhabitants of Celebes, like those of Indonesia in general, are believed to have come from the Asian mainland in three main waves of migration over a period of several centuries. Each successive wave brought its own characteristic social organizations, customs, and languages, and in general, the newcomers were more advanced than the people of the preceding migration. The people in each of these waves possessed unique physical characteristics. Interbreeding among the three groups has been extensive down through the centuries, however, and it is now difficult to identify an ethnic group as descending from the people of any particular migration. Because of the mixture of racial types, ethnic groups are now distinguished not so much by physical appearance as by cultural factors such as language, dress, and social customs.

* At the time of the 1961 census, Celebes had only two provinces -- Sulawesi Utara-Tengah and Sulawesi Selatan-Tenggara. The two provinces were divided on 1 January 1964 to create the present four provinces. The figures in the tabulated breakdown were derived by combining census report population figures for the second-order administrative divisions that make up the four newly created provinces.

S-E-C-R-E-T

S-E-C-R-E-T

2. Movement of Population

Many of the inhabitants of Celebes, notably the Makasarese and Bugis, are skilled navigators and have a long history of seafaring throughout the Indonesian islands. Their tiny praus -- easily recognizable by their high masts, square bows, high sterns, and outboard rudders -- are seen throughout Indonesian waters and as far away as Singapore and the northern ports of Australia. In addition to conducting legitimate trade, the Bugis have been renowned as pirates throughout Southeast Asia, particularly in the Celebes Sea - Sulu Sea area. Many have settled on other Indonesian islands as well as on the coast of mainland Malaysia.

Many members of the Minahasan, Makasarese, and Bugi ethnic groups have emigrated to Java; there are sizable communities of these peoples in Djakarta, where they work as government officials and clerks or as accountants in private firms.

Prior to Indonesia's implementation of its confrontation policy with Malaysia in 1963, workers (mostly Bugis) moved in considerable numbers from Celebes to Sabah, the easternmost of the Malaysian states, to work in the timber industry and on the rubber and tobacco estates. Although many of them were temporary workers who returned to their homeland after acquiring a nest egg, some have remained in Sabah, where a permanent Indonesian community of about 25,000 includes many persons from Celebes. Although permitting members of the Indonesian community (many are second-generation residents) to remain, Malaysian officials have curtailed further movement of Indonesian laborers into Sabah.

After eruptions of Mount Agung ruined considerable areas of agricultural land on Bali in 1963, the Government of Indonesia (GOI) initiated resettlement programs to move the victims of the eruptions to other Indonesian islands. Some were moved to Celebes. Many of these Balinese were settled on land formerly cultivated by members of Darul Islam (DI, an extremist Moslem terrorist organization) whom the central government had dispossessed; in many instances, the former cultivators still claimed the land, thus creating conflicts over land tenure.

Traditionally, there has been considerable movement of people between the Philippines and Indonesia in the Talaud and Sangihe Islands area north of the northern arm of Celebes. Numerous illegal crossings have been made in this area, mostly by Indonesian copra traders who take their products to the

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S-E-C-R-E-T

closer and more profitable Philippine markets. A permanent Indonesian community, variously estimated at between 5,000 and 12,000, currently resides on the southern Philippine island of Mindanao. Most members of the community are illegal residents who came from Celebes and nearby islands, although a few came from the Moluccas and Borneo. Many of those from Celebes are Christian Minahasans who were driven from their homelands in the northern part of the island by the fanatical Darul Islam terrorists in the 1950's. Most of the Indonesians in the Philippines bear strong cultural and physical affinities to the indigenous people of Mindanao and have little trouble assimilating into their new environment. Most of them take jobs on plantations where they work for low wages, thus creating hostility among the local Philippine workers. Although the great majority of these Indonesians are politically ignorant, the Philippine Government has been fearful of possible infiltration of Indonesian agents into its southern islands to create dissidence and in 1963 reached an agreement with the Indonesian Government to have members of the Indonesian community returned to their homeland. As a result, about 5,000 illegal Indonesian residents in the Philippines have been repatriated since March 1963, mostly to the Talaud and Sangihe Islands. Many of the repatriates, however, are believed to have returned to Mindanao, which has a higher standard of living than the economically undeveloped and neglected islands of the Talaud - Sangihe group.

3. Education

During the school year 1960-61, 11,666 teachers in 3,223 schools in Celebes taught 559,883 primary pupils and 40,723 secondary pupils. Further information on education is included in the discussions of individual ethnic groups, below.

4. Occupations

Copra -- the dried meat of the coconut used in the manufacture of soap, perfume, cooking oils, and a wide range of other products -- is the major earner of foreign exchange in the economy of Celebes. Most of the copra is sent to Indonesian markets; considerable amounts, however, are smuggled out of the country to Sabah and to the Philippines, where copra commands a higher price. The Indonesian Government has generally been unsuccessful in its attempts to control this illegal trade. Money derived from copra smuggling contributed heavily to the financing of the Universal Struggle Movement (Permesta) rebellion in northern Celebes during the

S-E-C-R-E-T

S-E-C-R-E-T

1950's and more recently helped to finance the Darul Islam insurrection in the southwestern part of the island. There are few large coconut palm plantations in the island; instead, individual families usually have their own small grove, particularly in the northern part of the island. Commercial crops other than copra are few. Coffee, tobacco, rubber, and sugarcane are grown on plantations near Makasar and Manado, and indigo and cotton are grown in smaller quantities elsewhere on the island.

Rice is the major dietary staple on Celebes. Wetland rice is grown in the coastal regions and interior valleys, and dryland rice is grown chiefly in the interior mountainous part of the central core and in the northeastern and southeastern peninsulas; more than four times as much land is devoted to wetland varieties. Because large areas of Minahasa are devoted to coconut cultivation, this region must import rice from the southern part of the island. Maize is the staple crop in much of the southeastern peninsula and in the more remote valleys of central Celebes. Cassava, sweet potatoes, and millet are among other food crops grown.

Fish is an integral part of the diet of most coastal people; near Minahasa particularly, fish are abundant in the waters of the Celebes Sea, and fishing is a full-time occupation for many men. The ships of the Makasarese, Bugis, and Minahasans are found not only in the coastal waters of Celebes but also throughout Indonesian waters, carrying fish and other goods in both legal and illegal trade to the islands of Indonesia as well as to neighboring countries.

5. Dress

Traditional attire in most parts of Celebes has been either modified by or entirely replaced by Western-style or Malay-style dress. Modern dress -- short trousers, sarongs, tunics, blouses, and jackets in various combinations -- is now the rule in all but the most inaccessible parts of the island. The sarong, usually brightly colored in greens, reds, and blues, is commonly worn by both men and women in the southwestern peninsula. The men wear it in addition to trousers, either wrapped around the waist or thrown over the shoulder. The sarong is rarely seen in the northern peninsula, where the people have converted almost entirely to Western attire. A black velvet fezlike hat called a pitji is worn by most men, particularly the Bugis and Makasarese. Women usually wear scarves around their heads.

S-E-C-R-E-T

S-E-C-R-E-T

6. Health and Medical Factors

Little information is available on health conditions and medical facilities in Celebes. The most prevalent diseases are malaria, plague, dysentery, typhoid and paratyphoid fevers, yaws, typhus, venereal diseases, and dengue and other fevers. Minor epidemics of smallpox occur from time to time. A recent report states that there are 109 hospitals on the island, with a total of almost 7,000 beds, and about 160 outpatient clinics. There is an acute shortage of medical personnel of all types, particularly in rural areas.

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7. Ethnic Groups

a. Toradjas

Toradja is a Bugi term used to refer to the people of the central core area of Celebes. It is a scornful term for an upland man that translated roughly means yokel. According to some authorities the Toradja ethnic group comprises four closely related subgroups -- the Sadang, the Poso, the Palu, and the Koro, although according to other authorities it comprises only three subgroups -- the Sadang, the Poso, and the Sigi. The Sadang subgroup, which occupies the southwestern part of the central region, numbers about 500,000 people; the other subgroups combined number about 400,000. In this discussion, except where the character of a subgroup is particularly noteworthy, the Toradja group is treated as a whole.

Most members of the group are farmers. Although the poorer people in the more remote interior regions grow meager crops of maize and vegetables on the upper slopes, most of the Toradjas grow dryland rice as their dietary staple, using slash-and-burn cultivation. Some, however, including many of the Sadangs, grow wetland rice in irrigated fields on valley floors. The Sadangs have traditionally had a taboo against slash-and-burn agriculture. The taboo is breaking down, however, and dryland fields are appearing in parts of the Sadang region while, at the same time, wetland fields are appearing in areas previously used only for dry crops. Rice is held in great reverence among most Toradja tribes; other crops are not. The women usually plant and cultivate the rice; both sexes harvest the crop. A festival period that lasts about 3 months follows the rice harvest in June.

Sugarcane, coconuts, and breadfruit are among the more important of the dietary supplements. Pork is an integral

S-E-C-R-E-T

S-E-C-R-E-T

part of the Toradja diet; fish are raised in the paddy fields, and reportedly, dogs are eaten by the people of the more remote mountain regions. The Toradjas are also reported to eat the fresh of lizards; the lizard skins are traded to Chinese dealers. Some Toradjas are traders, and in addition to lizard skins they collect and trade copra and jungle products such as rattan, resin and other gums, and pelts of various animals.

The traditional Toradja houses are communal, usually housing 4 to 6 families, with each family having a separate sleeping compartment; the cooking and eating area is shared by all of the families in the house. In many villages several small shedlike structures of bamboo are built between the larger traditional houses to house the overflow. The typical houses is large, built on massive pilings, and resembles a ship with a gigantic superstructure and a strangely shaped roof built of tiers of split bamboo that rise at each end to form steep peaks like the ends of the native prau. Steps, reminiscent of a ship's ladder, lead to a porch that extends along the front of the house. It is used as a working area and meeting place in much the same way that the veranda of a Dayak longhouse of Borneo is used. The older houses have pairs of buffalo horns -- believed to be the supreme symbol of magical strength -- adorning the front of the house and a carved wooden buffalo head hung over the door. The number of sets of buffalo horns is an indication of the social standing of the family. The houses of the Toradja nobility can be recognized by their highly decorated gables. The unique traditional houses are becoming less common, as the Toradjas (particularly the Sadangs) are now more commonly adopting the simpler and more practical designs of the single-family dwellings of the Bugi people to the south.

In addition to the houses, each Toradja village contains huge structures used for the storage of rice. These rice barns are very elaborate, built along the same unique pattern as the traditional Toradja house but usually even more ornate. Visitors to a Toradja village are usually not invited into the house but rather to the platform of the largest rice barn, which is considered to be a place of honor. The fine design and condition of these rice barns and their use as a place of honor for visitors reflect the deep respect for the rice plant that is universal among the Toradjas.

Many Toradja settlements are still isolated in the highlands. During the early years of this century, however, the Dutch administrators succeeded in encouraging some of the Toradjas to move down into the river valleys from their isolated villages that were built high on the

S-E-C-R-E-T

S-E-C-R-E-T

mountain slopes like the walled fortresses of medieval Europe. These valley villages generally consist of houses aligned in parallel rows, each house built within its own compound. In Sadang country, houses are usually spaced farther apart than in other areas, and each house is surrounded by its own croplands. Sadang villages are usually built in the ricefields on the valley floor, but where cropland is at a premium they may be built on a slope overlooking the fields.

An estimated 50 to 60 percent of the Toradjas, particularly the Posos, have been converted to Christianity by missionaries. Many of the rest still cling to their animistic beliefs and practices, but some Sadangs living in proximity to the Moslem Bugis have become Moslems. For most converts the newly adopted religion is superficial, lax, and very tolerant. The wide variety of religious beliefs among the Toradjas and the wide disparities in degree of tolerance within a single faith have created dissension among the tribes that did not exist before the introduction of the new religions.

The animists worship a host of ancestral and local spirits. Although the spirits are not greatly feared, they are believed to be capable of affecting the lives of the people and are respected. Animals are slaughtered as sacrifices at all festivals in order to propitiate the spirits. The buffalo is held sacred and its image is considered to be a symbol of fertility and strength and a protection from evil. During epidemics, ceremonies are held to placate the spirit world and thus expel the disease from the village.

Worship of the dead is an integral part of Toradja religious practice, and an elaborate funeral ceremony is the supreme occasion of all social life. Funeral ceremonies are festive occasions; there is little sadness. Buffaloes, believed to embody spirits, are slaughtered and eaten with fervor in the belief that the eater will acquire great strength. The use of burial caves carved high in the faces of cliffs is a distinctive feature of the Toradja culture. The remains of the corpse are deposited in one of these caves after being kept in the home for a considerable period, often several years, during which time the house is under a taboo and rice cannot be brought into it.

The Toradjas believe that a man's head may contain the spirit of a brave ancestor and that the head, therefore, contains special qualities of healing. This belief accounted in large part for the practice of headhunting, which prevailed in Toradja lands until early in this century, when it was suppressed by the Dutch. Before the suppression convicted sorcerers were sold to other villages, where they were beheaded.

S-E-C-R-E-T

Taking the head of an enemy was believed to deprive his village of vital supernatural powers, and an enemy head was a necessary offering to the ancestral spirits in order to ensure the welfare of the village. Until recent years, skulls could be found hanging from the front gable of the rice barn in many villages.

The Toradjas, particularly the Sadangs, were fairly class-conscious until slavery was abolished by the Dutch in 1906. Descendants of slaves work as servants even now and are, for all practical purposes, still slaves. These slaves and the nobility account for only a small portion of the Toradja population; commoners are in the great majority. Inter-marriage between classes has been increasing in recent years, and class distinction is slowly disappearing. Restrictions against the marriage of a man to a woman of higher status remain, however, and scorn is heaped upon both the husband and the wife of such a marriage. Polygamy is reportedly practiced by some Sadang men, but partly because their adat (the body of native law based on tradition) requires that each wife live in a separate house, it is not a common practice. Toradja society is patrilocal -- centered around the husband's family -- although reportedly at one time Sadang society was matrilineal -- centered around the wife's family, and there may still be some vestiges of this system. Toradja women enjoy considerable freedom.

Because of the isolation of these hill people, there have been few Toradja marriages with people of other ethnic groups, but there are no taboos against such marriages. Exogamous marriages are becoming more common, particularly with members of other ethnic groups of Celebes and with Javanese.

In most Toradja areas, particularly among the Sadang, society is highly capitalistic and there is a strong sense of private property. Wealth is reckoned by such things as size of landholdings, number of buffaloes, and size and ornateness of one's house. Acquisition of wealth can move one up the social ladder. Among the Sadang and perhaps among other Toradja subgroups, a minority of the people own all of the land. Reportedly, friction develops between landowners and sharecroppers. Although the central government has initiated a countrywide land-reform program, it has been ineffectively implemented, and it is doubtful that much has been done to redistribute the land among the peasantry on Celebes.

Each Toradja household has a headman. These headmen together form a kampong council from which a kampong head is elected. Formerly there were alliances among nearby

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Figure 58. Toradja village. High limestone hills like the one in background are commonly honeycombed with caves.

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Figure 59. Toradja house. Note distinctive design. The elevated and enclosed part of the house is entered through a hole in the floor.

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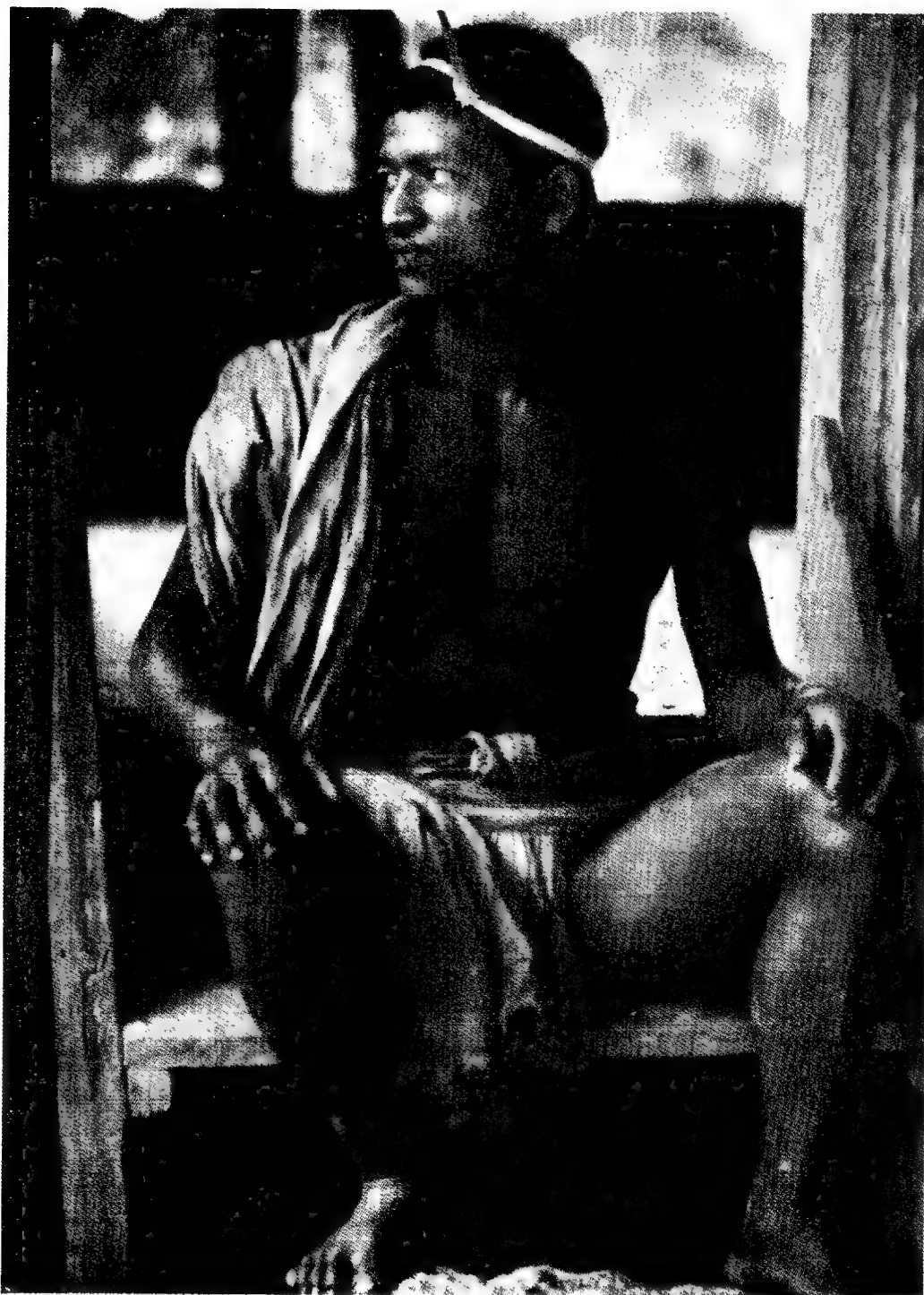


Figure 60. Toradja youth in loincloth. Such attire is found only in remote villages.

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Figure 61. Toradja girl. Traditional attire is rapidly giving way to Western or Malay dress, even in remote areas.

S-E-C-R-E-T

kampongs for protection against headhunting and slave hunting, but since the virtual elimination of these practices, it is likely that most of these alliances have been dissolved.

The Toradjas speak a language of the Malayo-Polynesian linguistic family and although there are several dialects within the group, they are all mutually comprehensible. The Toradja language has never been adapted to writing and there are no written historical records. The spoken language bears a resemblance to that spoken by the Bugis to the south, but the two languages are not mutually comprehensible. Many members of the Sadang subgroup, however, do speak and understand the Bugi languages. Persons who can speak and understand Bahasa Indonesia -- a modernized and romanized form of bazaar Malay and the official national language of Indonesia -- can probably be found in nearly every Toradja village. The Toradjas are very conscious of the advantages of education and are anxious to learn. Nearly every kampong has a primary school, many of them former mission schools that have been taken over by the central government. Toradjas desiring a higher education must go to Makasar or to places outside Celebes.

Prior to pacification by the Dutch, the Toradja tribes were continually warring with one another while at the same time their numbers were being depleted through attacks by the Bugis, who kidnapped them and took them to their homelands as slaves. Nonetheless, the Toradjas developed a reputation as a fierce, warlike people. Since pacification, however, white travelers in Toradjaland have invariably found them gentle, shy, and generally friendly after one gets to know them.

Hostility between the Toradjas and the strongly Moslem Bugis has increased during this century, as many of the Toradja tribes were converted to Christianity by missionaries. The Toradjas were generally content with the colonial administration of the Dutch. During the period of political upheaval after World War II the politically passive Toradjas showed little interest in Indonesian nationalism. After the ouster of the Dutch and during the early stages of the new Government of the Republic of Indonesia the Toradjas were continually subjected to anti-Christian attacks by Darul Islam terrorists, most of them members of the Bugi ethnic group. The terrorists massacred the people, burned churches, looted and burned homes, and destroyed crops. Many Toradja villages were completely wiped out. During the Permesta rebellion forces of the Indonesian Army (mostly Javanese) were active in Toradjaland, ostensibly to root out the Permesta rebels but perhaps more importantly to regain this Christian area for Islam. The Toradja tribes reportedly put up a militant defense of their homeland.

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25X1C10c In spite of their history of intertribal warfare the Toradjas are now a generally nonaggressive people. They have been likened to the Bataks of Sumatra in that they are highly independent, very intelligent, and shrewd in money matters. Because central government forces have been active in southwestern Celebes for a number of years trying to eliminate the Darul Islam terrorists, the Toradjas probably are more pro-GOI than in previous years. Only if the GOI were to interfere openly in their way of life, by attempting to Islamize Toradjaland, for example, would they be likely to take hostile actions against it. Even though they are militarily inactive at present, some Toradjas may still be receptive to recruitment for paramilitary operations. Most Toradjas probably have some familiarity with small firearms from their contact with Permesta and Darul Islam rebels and with government troops.

b. Minahasans

The Minahasans, who occupy the eastern portion of the northern peninsula of Celebes, number about 500,000 people. They have strong Caucasian features acquired from inter-marriage with Spanish traders who settled on the peninsula in the 17th century and with the Dutch during their rule. The Minahasans also show signs in their physical appearance, language, and way of life of close connection with the people of the southern Philippines.

Minahasa is a region of little poverty, with no beggars or social outcasts. The relative prosperity and resultant lack of social servility among the people is due in large part to proceeds from the export of large quantities of copra, much of which is smuggled to ports in Sabah (primarily Tawau) and to the Philippines in exchange for manufactured goods. Wet-land rice is the major subsistence crop but much maize also is grown. Fish are an important part of the Minahasan diet, as the waters of the Celebes Sea are rich in fish; the Minahasa coastline is dotted with fishing ports. Many Minahasans emigrated to Java during the Dutch colonial administration to occupy positions in the civil service, and many still go there to seek clerical employment both in the government and with private firms.

About 95 percent of the Minahasans are Christians, most of them Protestant but a sizable number Roman Catholic. Like all other "Christian" groups in Indonesia the Minahasan brand of Christianity retains some vestiges of animistic beliefs and customs, although probably fewer than are retained by other groups. Every village has its church and most Minahasans

S-E-C-R-E-T

S-E-C-R-E-T

are regular churchgoers. The pastors are very influential in village life and are often asked to settle local disputes.

The Minahasans speak a language which, like the language of the Gorontaloese who occupy most of the rest of the northern peninsula, is closely akin to the languages of the southern Philippines. Many also speak Bahasa Indonesia. The Minahasans are very conscious of the benefits of education, which is more advanced in Minahasa than in other parts of the archipelago; every village has a school, and although not compelled to attend, nearly every child goes to school. During colonial times, the Minahasans, along with the Minangkabaus of western Sumatra, had the highest literacy rate in Indonesia. Today, almost all Minahasans can read and write.

During the Dutch colonial administration, Minahasa was virtually a Far Eastern province of Holland. More than any other ethnic group in Indonesia, the Minahasans were adaptable to Western ways and therefore strongly influenced by the Dutch. The Minahasans were transformed within several decades after the mid-19th century from a headhunting tribal group, probably much like the neighboring Toradjas in social organization, to a settled group with a peasant economy and a highly Westernized Christian culture. A Western atmosphere continues to prevail as the Dutch influence is still reflected in the physical appearance of the people, in their attire (sarongs are rarely seen), religion, housing, and general manner. Western-style music and dancing are popular even in the smallest village. Villages and towns are neat and well laid out, not unlike those of the West.

The Minahasans generally were content with Dutch colonial administration, and even now many probably would prefer it to the present rule of the GOI. There was, in fact, a question of loyalty during the Indonesian struggle for independence. Many Minahasans had served in the Dutch Army and their paychecks contributed greatly to the prosperity of Minahasa. After independence and during the early years of the central government the Minahasans felt themselves economically and culturally threatened by the new regime, which they regarded as under the hegemony of Java. They felt that the foreign exchange earnings of their region, derived mostly from copra, were being used to benefit Java and that allocations of government funds to northern Celebes were insufficient. These grievances led to the Permesta rebellion in 1958. During the Permesta fighting most Minahasans were either members of the rebel bands or their active supporters. Although some dissatisfaction with the central government still exists, a growing sense of Indonesian nationalism is permeating Minahasa

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Figure 62. Minahasans of northern Celebes.



Figure 63. Native children of Bitung in Minahasa, northern Celebes.

S-E-C-R-E-T

S-E-C-R-E-T

and sympathies for any form of separatist movement do not appear to be strong; probably the majority of Minahasans now at least tacitly support the present government. Although quiescent for the time being, Minahasa retains its potential as a trouble spot for the central government.

The Minahasans have been characterized as gay and friendly as well as aggressive and opportunistic. Their carefree way of life reportedly is looked down upon by the island's more staid Moslem groups such as the Makasarese and Bugis. Their past close ties with the Dutch, coupled with their travels and good education, have given the Minahasans a more worldly outlook than members of the other Celebes ethnic groups. Most of the government officials in northern Celebes are native to the region, and many have been reported to be outspokenly pro-American.

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c. Bugis and Makasarese

The Bugis (also known as Buginese), who number about 2,500,000 on Celebes, occupy most of the southwestern peninsula of the island. Communities of Bugis are also scattered in coastal areas throughout Celebes as well as on the other islands of the Malay Archipelago, especially the Indonesian part of Borneo. The Makasarese, whose numbers are estimated at about 1,200,000, occupy part of the southwestern peninsula -- in and near the city of Makasar. Although the Bugis and Makasarese are separate groups with little intermarriage, there is little cultural distinction between them, and therefore they are treated here as one ethnic group.

Wetland rice is the major crop throughout most of the southwestern peninsula. Although the Bugis generally are not skillful cultivators and usually harvest only one crop a year, the area is self-sufficient in rice and, in fact, usually exports a surplus to the northern part of the island. Maize is sometimes grown as a second crop after the rice is harvested. In the poorer interior areas it replaces rice as the dietary staple. Some commercial crops are grown for export, notably copra, rubber, coffee, tobacco, and sugarcane. Fish, found in the rice paddies as well as in the seas around

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S-E-C-R-E-T

Celebes, provide most of the protein of the Bugi diet, along with beef from cattle that are raised and venison from deer that are hunted.

The Bugis are skilled in handicrafts such as making mats, baskets, hats, and furniture from rattan, palm leaves, jungle fibers, and horsehair; they trade or sell these articles in the marketplaces. Although their notoriety as pirates has diminished in recent years, the Bugis are still skillful seafarers and engage in both coastal and overseas trade. Copra, rattan, fish, spices, and other products from the Bugi region are traded for cotton goods, petroleum products, glassware, hardware, and other manufactured goods. Much of this trade has been carried on with Tawau in Sabah, and reportedly flourished throughout the period of confrontation. The GOI patrols the waters between Celebes and Sabah with gunboats in an effort to curtail this illegal flow of goods.

Most Bugi villages contain from 20 to 40 houses, with each house containing up to 20 people. Bugi houses are not always grouped into villages. Many are scattered in the ricefields, hundreds of yards apart. Houses are perched on piles 6 to 8 feet above the ground, with the space beneath used as a work area or closed off and used for storage. A ladder leads to a door at the front, and most houses have a balcony that extends all around the house. Among the nobility the ladder is replaced by a ramp of woven bamboo and the balustrade around the balcony is intricately designed; the front of the house is often painted in bright colors. Walls are constructed from wood or bamboo; roofs are usually of thatch, although corrugated metal is becoming more common. Windows are formed by pushing sections of the roof upward and propping them open with bamboo poles.

Prior to the early years of this century the class system was highly developed and the aristocracy very powerful in the Bugi social system. Because the feudal lords proved troublesome to the Dutch through their assertion of independence and through their quarreling over spheres of influence, the Dutch strove to eliminate the feudal system and free the slaves. Vestiges of the feudal system remain, however, and there is still little mobility in Bugi society. Large property owners and sharecroppers remain in control, and descendants of slaves are still at the bottom of the socioeconomic ladder. A large percentage of the members of the lower class live in Makasar, to which their ancestors had fled after being freed by the Dutch. As slavery disappeared the size of the noble class also diminished, since there was no longer a labor force to pay homage to it.

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Social classes are rigidly set, except for women, who can move up the social ladder through marriage. The marriage of a lower-class man to an upper-class woman, however, is forbidden. Death or exile was formerly the penalty; today social ostracism is more likely the principal means used to discourage such marriages. Although having more than one wife is permitted under Moslem law, polygamy is rare in the Bugi ethnic group as well as in other Islamic groups throughout Indonesia. No rigid rules regarding marriage inside the ethnic group (endogamy) or outside the ethnic group (exogamy) prevail among the Bugis, although marriages are usually within the kampong. There is little intermarriage between the Bugis and Makasarese; marriage between the Bugis and Toradjas is becoming increasingly common. Marriage partners have traditionally been selected by the elders, with the marriage usually taking place when the partners are in their midteens. A bride-price, varying according to class, is normally paid to the family of the bride; formerly among the nobility, slaves were used as a medium of exchange in buying the bride. The husband customarily lives with the wife's family for about a year, and then the couple usually establishes its own home. In most respects, men and women have equal rights in the Bugi society. Both retain their separate property after marriage. Women often act independently of their husbands in business matters, and many chieftains are women.

The Bugis, to a greater extent than other ethnic groups of Celebes, are preoccupied with adat (customary law); it transcends every other influence in Bugi life, including religion. Strict adherence to their adat is considered to be largely responsible for the lack of social and economic progress among the Bugis in this century. This is in contrast to the Toradjas and Minahasans, for example, who have been less reluctant to discard their traditional adat and adopt more progressive ways.

Although the Bugis are ardent, often fanatical, Moslems -- many have been members of the Darul Islam -- they have retained vestiges of their original animistic religion. Most villages have an animist priest as well as a Moslem religious official.

The Bugis and Makasarese speak closely related and mutually intelligible languages of the Malayo-Polynesian family. Both are similar to Malay and many words are easy to understand if one understands Malay. Both languages can be written in an Indian script, and each has a well-developed literature of its own. Many of the people speak Bahasa Indonesia; a few speak English. Although most Bugis and Makasarese receive a primary school education, they are

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Figure 64. Typical Bugi dwelling in southwestern Celebes. Bugi buildings are drab in comparison with those of the Toradjas.



Figure 65. Bugi girl in everyday attire.

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Figures 66 & 67. Typical Makasarese houses in southwestern Celebes.

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Figure 68. Makasarese couple in ceremonial dress.



Figure 69. Makasarese man and child.

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not as interested in education as either the Toradjas or Minahasans.

The Bugis have been characterized as a dour and obstinate people with explosive tempers. They are reported to be jealous, vengeful, and quick with the knife if they feel that they have been wronged. Most Bugi men are always armed; their favorite weapon is a short knife (about 7 inches long) which is concealed in the folds of the sarong. Although the Bugis are prestige-seeking and very competitive, they are also conservative and reluctant to change their ways. They appear to be reluctant to engage in political talk and thus give the impression of being uninterested in other than local affairs, although most are probably aware of Indonesian politics and of world politics, at least to the extent of recognizing a conflict between the Communist World and the Free World. The Bugis are reported to be suspicious of all outsiders, sometimes to the point of hostility toward them. One source feels that a Caucasian would never gain complete acceptance among the Bugis; at best they would regard him with a great deal of reservation. When dealing with the Bugis, the white man would do well to be completely frank but, in respect for their quick tempers, careful not to antagonize them.

At one time, relations between the Bugis and the Toradjas were strained because captured Toradja chiefs were made vassals of the Bugis and because during Bugi attacks on Toradja lands cattle were stolen and slaves kidnapped. Although these raids are a thing of the past, there still are hard feelings between the two groups. The Bugis look down upon the Toradjas, calling them dogeaters; on the other hand, in view of the great social and economic strides that have been made by the Toradjas in this century, it is likely that they may now look down upon the less progressive Bugis.

Formerly, considerable enmity existed between the Bugis and the Makasarese. This hostility, which was created in part by the disproportionate number of Makasarese that occupied government positions, is now believed to be minimal, although in higher political circles rivalry probably persists.

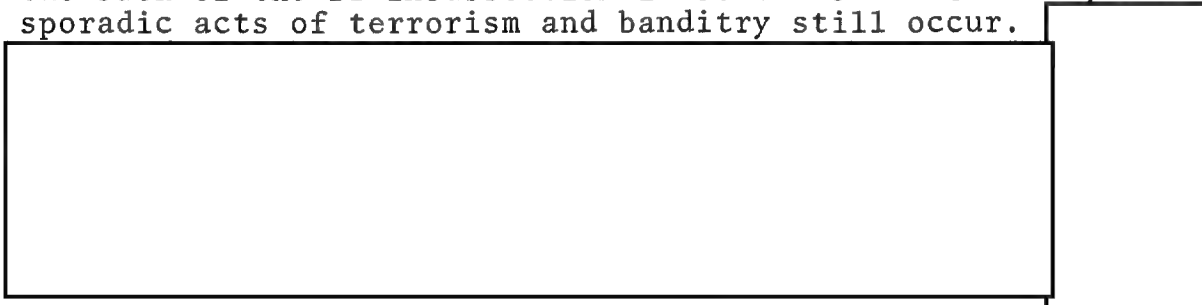
The Bugis have been reported to be violently resentful of the Javanese, and have been a source of dissidence and insurrection against the central government. The Bugis generally have sympathized with the Darul Islam terrorists who have operated in their region since 1953, although much of the assistance provided by the local populace has been extorted through fear of reprisal from the DI's. The DI's were led by Kahar Muzakhar (a Bugi and former guerrilla

fighter against the Dutch) until his death at the hands of Javanese troops early in 1965. The existence of this terrorist group among the Bugis reflected not only religious fanaticism and antipathy toward the Javanese but also a desire for more local autonomy. The local anti-Javanese and anti-Sukarno sentiment was given impetus by the presence in Bugi territory of Javanese troops sent to quell the DI insurrection.

Although anti-Javanese feelings still prevail among the Bugis, an officer of the American Embassy in Djakarta who traveled in southwestern Celebes in early 1965 reported that the area appeared to be fully responsive to the central government. Even the inhabitants of remote villages in the interior knew the words and tones of the latest revolutionary hits in Djakarta. He felt that there would be little chance of an outside power stimulating renewed dissidence among the people of southwestern Celebes.

The death of Kahar Muzakhar is believed to have broken the back of the DI insurrection in southwestern Celebes, but sporadic acts of terrorism and banditry still occur.

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d. Chinese

No current figures are available on the number of Chinese on Celebes, but there are probably about 100,000 -- fewer than on the other major Indonesian islands. Most are concentrated in Makasar and Manado, where they are part of large Chinese communities, but Chinese merchants and traders are found in most of the larger villages on the island. As elsewhere in Southeast Asia, most of the Chinese are engaged in commerce; few are settled on the land. Their trading activities have been considerably curtailed since an edict issued in 1959 by the Indonesian Government forbidding aliens to engage in retail trade in rural areas.

The Chinese have been assimilated to some extent with other ethnic groups on Celebes, almost entirely through the marriage of Chinese men to indigenous women. Even though most of the Celebes Chinese were born there and may look back on several generations on the island, almost all continue

S-E-C-R-E-T

to speak the Chinese dialect of their parents. Hokkien is the dominant dialect on Celebes as well as in the rest of Eastern Indonesia. In addition to their own dialect, many Chinese can converse in the local tongue as well as in Bahasa Indonesia. Many of the Chinese children on Celebes still attend Chinese-language schools, although the proportion that attend schools where their classmates are almost all ethnic Chinese is decreasing.

Speech-group membership is an important correlate of political alignment among the Indonesian Chinese and, in general, Hokkiens are decidedly leftist. The Chinese of Celebes, as well as those of all of the outer islands of Indonesia, are generally more oriented toward mainland China than toward Djakarta and are less assimilated into the Indonesian way of life than are the Chinese of Java. In 1958, after Taipei's alleged aid to the rebellions that had broken out on Sumatra and Celebes, a GOI campaign destroyed the effectiveness of the Kuomintang as a force in Chinese politics in Indonesia. Then, in late 1959 the government took advantage of its discriminatory campaign against the Chinese to weaken the Communist partisans within the Chinese community. Anti-Chinese feeling is widespread in Indonesia, particularly since the eruption of hostility toward Communist China after the abortive coup in late 1965. Resentment against the Chinese is particularly strong among strongly Islamic ethnic communities such as the Bugis and the Makasarese. Although the Chinese generally do harbor resentment against the central government because of its discriminatory practices against them, the Chinese of Celebes as a group are not considered to have significant potential for paramilitary activities.

e. Minor Ethnic Groups

The Gorontaloese, a Moslem people who are estimated to number about 350,000, occupy the western portion of the northern peninsula. Very little is known about them, although they are a rather large group. Except for their religion, they are believed to be culturally and physically similar to the Minahasans. The Tominis, who number an estimated 100,000, occupy the western part of the northern peninsula between the Toradjas and the Gorontaloese and are culturally and linguistically transitional between these two groups.

The population of the Sangihe and Talaud Islands, which lie between the northern peninsula of Celebes and the Philippine island of Mindanao, was 194,566 according to the 1961 census. The people of these islands are closely related to the Minahasans and, like the Minahasans, most have been strongly

S-E-C-R-E-T

influenced by the West; many are Christians and most wear Western-style dress. Copra, most of which is smuggled to Sabah or to the Philippines, serves as the basis of the economy of the area. Many inhabitants of the islands have emigrated to the Philippines.

The Loinang tribes occupy the northeastern peninsula of Celebes and its offshore islands. They number about 150,000 people. The Bungkus (about 60,000), the Lakis and the Moris (combined, about 200,000), the Munis (about 100,000), and the Butungs (about 250,000) occupy the southeastern peninsula and offshore islands. Although most of these tribal people are animists, many have been converted to Christianity. Most are shifting cultivators of dryland rice.

C. Lesser Sundas

See Figures 70 through 102.

1. General

According to the 1961 census the population of the Lesser Sunda Islands (excluding Portuguese Timor) was 5,557,656. The population of Portuguese Timor according to official 1960 statistics was 517,079. Census figures of 1961 for the individual islands in the archipelago (listed from west to east as treated in the following discussion) and of 1960 for Portuguese Timor along with their population densities are tabulated below:

<u>Island</u>	<u>Population</u>	<u>Density</u> (per square mile)
Bali	1,782,529	790
Lombok	1,300,234	722
Sumbawa	507,596	85
Sumba	251,126	58
Flores (including Komodo and the islands of the Solor-Alor archi- pelago)	1,013,533	130
Indonesian Timor (including Roti and Sawu Islands)	702,638	109
Portuguese Timor	517,079	71

Overall densities are highest on the western islands and lowest on Sumba and the smaller islands at the eastern end of

S-E-C-R-E-T

the archipelago. Local densities, however, vary considerably within each island. Most of the people are concentrated in coastal areas and, to a lesser extent, in interior valleys. The higher interior areas are sparsely inhabited. There are few urban areas of significance in the Lesser Sundas. The major towns and their estimated populations are: Denpasar (50,000) on Bali, Bima (20,000) on Sumbawa, Kupang (60,000) on Indonesian Timor; and Dili (12,000) on Portuguese Timor.

In terms of racial characteristics, the peoples of the Lesser Sundas are transitional between those of Java and New Guinea. As the Malay traits of the people of western Indonesia become less prominent toward the east, Papuan and Negroid characteristics become more common, particularly on the islands east of Sumbawa.

2. Movement of Population

Most of the movement of people within the individual islands in the Lesser Sundas is related to the practice of shifting agriculture whereby the natives abandon farmland that is no longer productive and move their villages a few miles to virgin lands. Because the islands where this kind of agriculture is practiced (all islands except Bali) are sparsely inhabited, conflicts over land tenure are rare. Another type of intraisland movement is the seasonal migration of peasants in the interiors of the islands of the central and eastern parts of the archipelago to the coastal areas to seek work as laborers during the dry season, when agricultural chores are at a minimum.

A common type of interisland migration within the Lesser Sundas is the movement of more enterprising groups such as the Rotinese and Sawunese to islands inhabited by less economically advanced peoples, where they establish communities in proximity to indigenous villages and trade with the people in them. For example, large numbers of Rotinese are in the Kupang Bay area of Indonesian Timor. They reportedly are easily recognizable by their distinctive square hats as well as by their "arrogant swagger."

Some of the movement of peoples within the eastern Indonesian islands is related to Indonesia's longstanding problem of unequal distribution of population. As early as 1905, the Dutch colonial government initiated programs to move people from the densely populated parts of Java, Madura, and Bali to the sparsely populated outer islands. Although islands of the Lesser Sundas have rarely been resettlement sites, there has been talk in recent years of

S-E-C-R-E-T

S-E-C-R-E-T

using the central and eastern Lesser Sunda Islands for settlement of Javanese. Because of the remoteness and general unattractiveness of the eastern Lesser Sunda Islands for Javanese, however, it is quite unlikely that such resettlement will materialize in the near future.

Although migrations of peoples from Java to the Lesser Sundas are not numerically significant, Javanese as well as inhabitants of other islands (notably Celebes) go to the Lesser Sundas to hunt, fish, or trade. Unlike the transmigrants of the resettlement schemes, however, these people do not stay permanently.

The Indonesian Government has recommended that people from the overpopulated southern lowlands of Bali move to the more sparsely occupied (and less inviting) areas of western Bali and that people living in the densely settled central lowland of Lombok move to the sparsely inhabited mountain slopes in the north. This encouragement has not produced large-scale movement in these directions. The Balinese have gone to other Indonesian islands, however, particularly to southern Sumatra, Borneo, and Celebes, as part of the central government's resettlement program. These migrations were intensified after the eruptions of Mount Agung in 1963 rendered vast areas of farmland on Bali uncultivable by ordinary standards. Reportedly, the government has moved the inhabitants of entire villages as single groups to facilitate resettlement on the new islands, but it is likely that in most instances the transmigrants have drifted back to Bali. The pull of Bali is strong on its inhabitants and they may prefer an economically meager life there to any alternative that might be provided by settling on some other island.

3. Social System

Although in recent history outside forces such as the Dutch and the Japanese occupations and the Indonesian revolution have undermined village social organizations, the villages of the Lesser Sundas -- particularly those in the remote areas -- still retain a high degree of autonomy with little interference by the central government in local affairs. The villagers elect a headman who is responsible to a council comprised of the adult males of the village. The council -- guided by adat (customary law) -- governs the village. Each ethnic group has its own distinctive adat, which defines such things as inheritance, property, marriage, moral values, and reciprocal rights and obligations between relatives. Adat has been considerably undermined in the past century, and outside concepts are superseding tribal law, particularly in urban

S-E-C-R-E-T

S-E-C-R-E-T



Figure 70. Bali. Fishing village.



Figure 71. Bali. Village temple.

S-E-C-R-E-T

S-E-C-R-E-T

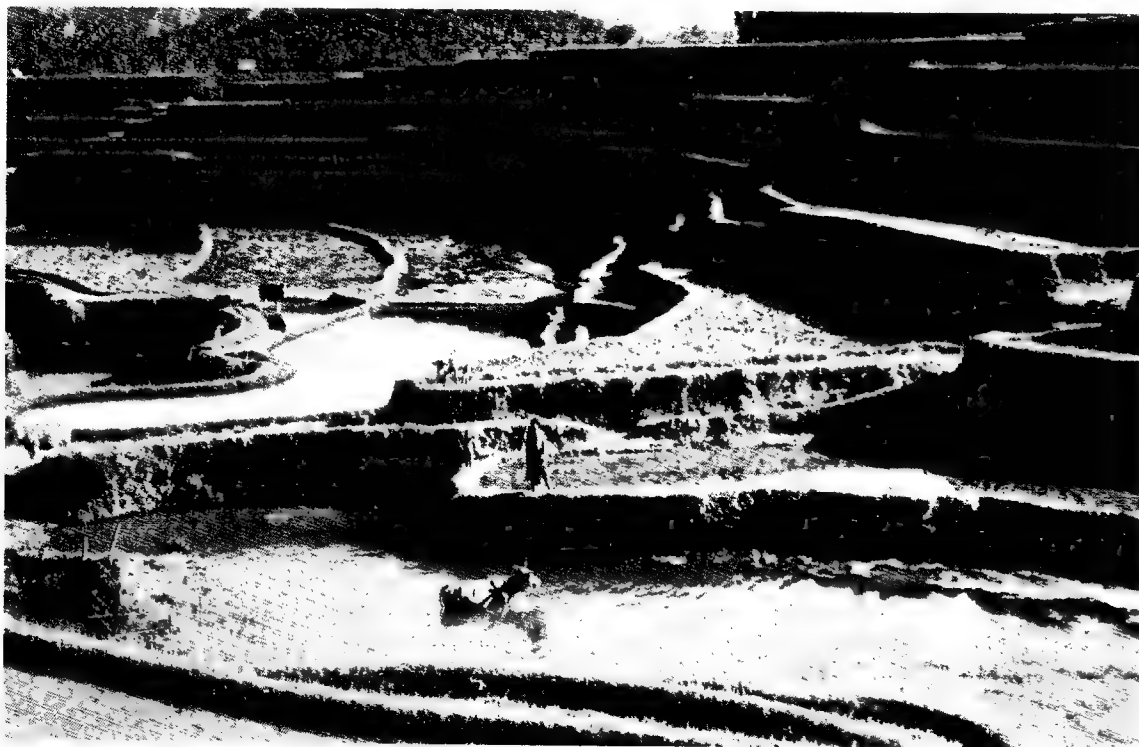


Figure 72. Bali. Terraced ricefields. Such fields are common throughout most of the island.

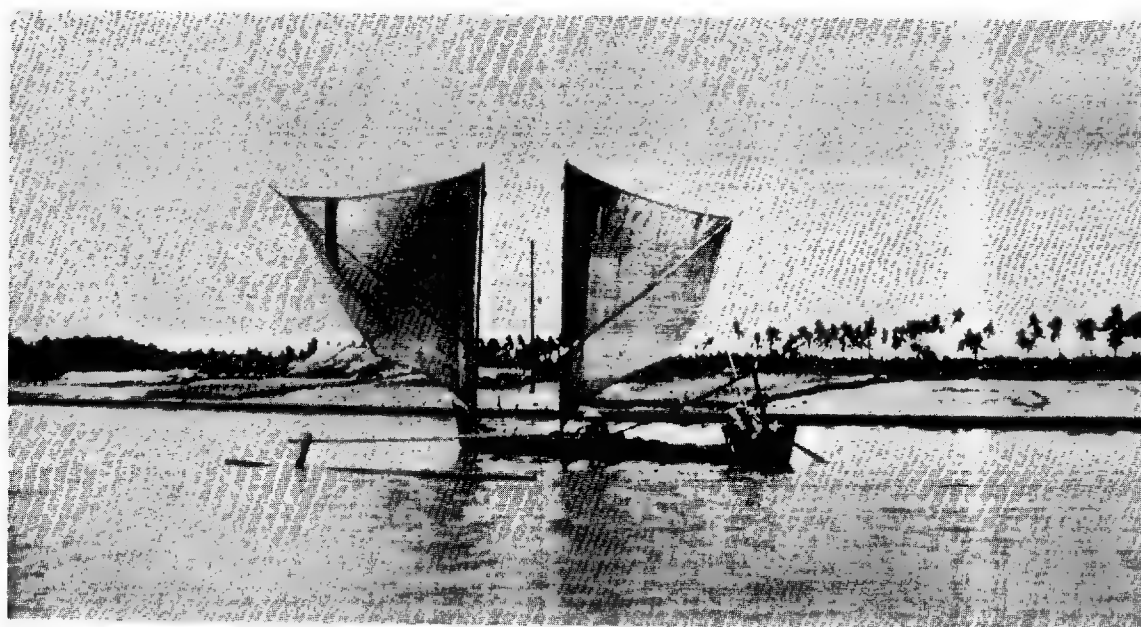


Figure 73. Bali. Native fishing boat.

S-E-C-R-E-T

S-E-C-R-E-T

areas. Traditional attitudes toward the supernatural forces believed to control adat are most pronounced in isolated rural areas. Village adat has resisted change most strongly on the eastern islands, but even there the arrival of Europeans and other foreigners and the extension of Javanese administration has notably changed the traditional beliefs and institutions.

In spite of the villagers' resistance to supravillage authority, intervillage political alliances were imposed during the early 1950's. These unions, which were established to facilitate administration by the central government, are headed by an administrator who is elected by all the men in the union and who is under the control of the provincial governor. The establishment of the unions deprived the village headmen of many traditional duties, such as adjudication of civil disputes between villages and maintenance of liaison with the central government. Loss of these responsibilities resulted in loss of prestige by the village headmen and thus created considerable resentment. The village headmen, however, have retained responsibilities for religious and communal matters, with duties including adat administration, tax collection, and record maintenance. In addition to the intervillage alliances imposed on the villages by the central government, local alliances may be formed voluntarily among several neighboring villages, particularly in the dryland-rice regions of the highlands, to facilitate the apportionment of agricultural land.

The village community still remains by far the most significant social unit for the great mass of the population. Widespread and deeply rooted traditions of democratic election to village offices and of communal plowing and ownership of land and a strong sense of mutual assistance (gotong rojong) prevail among the members of the community. Appropriate punishment -- ranging from denial of participation in village activities to (formerly) total exile -- is meted out to those who break the village laws or fail to abide by the rules of gotong rojong. On the central and eastern Lesser Sundas, cultural homogeneity may stop at the village limits; distinctions among villages in language, adat, housing, and other social customs often are great.

Class systems are common throughout the Lesser Sundas. On Bali, the Indian system of caste still exists, albeit in a modified form (see p.). Elsewhere in the archipelago, the hierarchy within the village is a matter of personal identification with village families. In addition, each person is assigned to his level of generation, and duties and

S-E-C-R-E-T

S-E-C-R-E-T

patterns of behavior for each level are fixed. Among some groups, there are noble, middle, and lower classes, between which some restrictions on marriage are imposed, principally against the marriage of a woman to a man of lower class; such a marriage was formerly punishable by exile.

Despite the loss of their traditional powers after independence, the nobility continues to exert influence on most of the islands, since the former rajahs and sultans now occupy government positions and thereby retain the patronage of their former vassals. In many areas, in fact, there has been no discernible change in the relationship between the nobles and their subjects in the past 20 years. In Indonesian Timor, for example, a subject still lowers his sarong to waist level when meeting the rajah. Furthermore, he never allows any part of his body to be above that of the rajah; if the rajah is sitting, the subject kneels.

In the marriage system on Flores (and presumably on other islands as well), the bride must be purchased from her family by the groom. The bride-price, commonly calculated in horses or cattle, is often so high that the husband is heavily indebted to his wife's family from the inception of the marriage and becomes a virtual slave to his in-laws. Female children are, therefore, greatly desired because they become valuable to their family when they reach marrying age. In effect, the marriage system encourages boys of marrying age to migrate to other islands (often to Java) where there is no bride-price or where the bride-price is lower. Male disenchantment with the local marriage rules might be used to advantage in the recruitment of personnel for paramilitary operations.

4. Religion

Inhabitants of the Lesser Sundas follow a variety of religions -- Hinduism, Islam, Christianity (both Protestant and Roman Catholic), as well as animism, which is found both in its "pure" form or combined with one of the other three.

A nucleus of Hindu adherents took refuge on Bali after the overthrow of the last Hindu dynasty in eastern Java in the 15th century, and today Bali and western Lombok, where Balinese have migrated, are the only Indonesian islands where the Hindu religion remains a strong influence. The Balinese brand of Hinduism contains some Buddhist elements and is permeated by primitive superstitions. Four castes of orthodox Hinduism are recognized. Although castes and means of livelihood are not necessarily related, peasants -- who constitute the majority of the population -- form the lowest caste.

S-E-C-R-E-T



Figure 74. Bali.
Typical young Balinese
man.



Figure 75. Bali.
Old man in sarong.
The satchel contains
writings from Hindu
scripture.



Figure 76. Bali. Balinese girls in typical dress.



Figure 77. Bali. Young dancer in batik costume with headdress of flowers. Note gamelan orchestra in background.

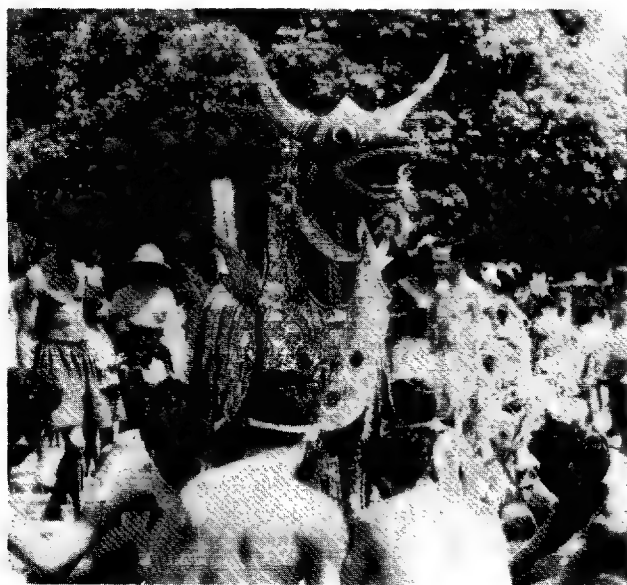


Figure 78. Bali. Cremation ceremony.

S-E-C-R-E-T

They are careful to show respect to superior castes but observe few other special acts of obeisance.

The lives of the Balinese are closely tied to their religion, but the Balinese are, for the most part, flexible in their religious practices. There are many gods (a Hindu deity well known in one area may be of minor importance in another), many temples and shrines, and many calendrically determined ceremonies replete with offerings of flowers, food, dances, and trances. Mediums, who communicate with the spirit world in order to protect individuals and communities, go into trances brought on by high-pitched emotion, often accompanied by self-stabbing. Spirits are believed to be housed in objects of both the physical and cultural environment; in general, high things such as temples, mountains, and the sun are believed to be occupied by benevolent spirits, while the seas and objects found in low places, such as sharks or snakes, are believed to house evil spirits. The offerings, trances, and dances are intended to exorcise the evil spirits. The Balinese believe in reincarnation; infancy and old age are therefore considered to be close to the supernatural, and the cult of ancestors is a dominant factor in Balinese life. Corpses are cremated, although sometimes the event is considerably delayed and meanwhile the body is temporarily buried.

Unlike Java, where Christianity is professed by only a handful of the approximately 65,000,000 people, Christianity in much of the Lesser Sundas, particularly the islands of the eastern part of the archipelago (Flores, Sumba, Timor, and the Solor - Alor group), is a significant force. Those professing Christianity are almost equally divided between Protestants and Catholics, with a combined total of about 40 percent of the total population of the Lesser Sundas. The Christians of Flores and Portuguese Timor are predominantly Catholic; the Christians of Indonesian Timor (nearly 70 percent of the population) are almost equally divided between Protestants and Catholics; most of the remaining Christians in the Lesser Sundas are Protestants. The Christians are generally found in the coastal areas where missionary activities (chiefly Dutch and Portuguese) were most intense. One of the attractions of Christianity has been that its missionaries have done much to improve the health, education, and general standard of living of the people while converting them to Christianity. In areas such as western Flores, where Christianity remains popular, many of the clergy still are Dutch or German, and they would be anxious to give food, shelter, or other assistance to a Western traveler.

In the Lesser Sundas, unlike most other areas of Indonesia, Islam is not a powerful force; only about 5 percent

S-E-C-R-E-T

of the population is Moslem. Only on Sumbawa and Solor is Islam professed by a substantial number of people, and even on these islands most of the people of the interior still cling to their animistic superstitions. Other areas with significant numbers of Moslems are eastern Lombok, north-western Alor, northern Lombok, coastal Adonara, western Indonesian Timor, and most of the larger urban areas of the archipelago. In all of these areas, most of those professing Islam originally came from Islamic regions of Java or Celebes; few of the indigenous people have been converted. Although Islam is professed by the majority of Indonesians, it is not a state religion and the government has done little to encourage conversion of natives professing other beliefs.

Adherence to Islamic tenets varies considerably among its followers on the various islands, but, as elsewhere in Indonesia, observance of Islamic practices is generally not as strict as among Moslem peoples nearer Mecca. In the Lesser Sundas, Islam appears to have the greatest influence on Sumbawa. There the people wear garments bearing strong resemblance to Arab attire, the local music has a distinct Middle East flavor, most hamlets have at least one mosque, and the rites of the Islamic calendar are closely followed. Those Moslems who can afford to do so go on a pilgrimage to Mecca, thereby attaining extra prestige and leadership stature.

Among the Christians of the Lesser Sundas and to a lesser extent among the Moslems, religion is essentially a superstructure of adopted practices on a foundation of animism. The underlying paganism gives to the religion unique characteristics that make it different from the form followed by orthodox Christians or Moslems elsewhere. For example, religious ceremonies may contain rituals dictated by the Bible or the Koran along with rituals directed to the world of spirits. Beliefs in the tenets of Christianity or Islam, however, are usually not as deeply rooted as is the belief in the world of spirits, taboos, and other elements of the traditional pagan superstitions.

Not counting those who profess to be Christian or Moslem but who cling to a belief in certain facets of their animistic heritage, an estimated 55 percent of the people of the Lesser Sundas are animists. Relatively few are on Bali and Lombok, but on most other islands animists form the bulk of the population. All interior areas of these islands are predominantly pagan; coastal regions are mixed. Although, in general, the animists of the Lesser Sundas recognize a Supreme Being, they also believe that they are surrounded by a host of malevolent

S-E-C-R-E-T

S-E-C-R-E-T



Figure 79. Lombok. Main street of Lombok.



Figure 80. Lombok.
Native women.

S-E-C-R-E-T

S-E-C-R-E-T



Figure 81. Lombok. Sasak people of small village in eastern part of island.



Figure 82. Sumbawa. Typical village.

-133-

S-E-C-R-E-T

S-E-C-R-E-T

and benevolent spirits embodied in such things as mountains, rivers, plants, and animals. Anything that is believed to contain a spirit is treated with great reverence, and a stranger traveling in the Lesser Sundas should be especially careful to show respect for these things. Taboos are many and varied. Making offerings and sacrifices to the world of spirits are common religious activities. Buffaloes are the most common sacrificial animals; isolated incidents of human sacrifice have been reported within the last decade.

5. Language

All the languages of the Lesser Sundas except those spoken in part of Alor belong to the Malayo-Polynesian linguistic family. Most of the people of Alor speak a language belonging to the Papuan linguistic family. Many of the languages of the eastern islands of the Lesser Sundas, although considered to be Malayo-Polynesian, contain some Papuan traits.

Except for the Alor language, the languages of the Lesser Sundas can be divided on the basis of similarity in grammar, vocabulary, and phonetics into four major groups: 1) Balinese, spoken on Bali and western Lombok; 2) Sasak, spoken in eastern Lombok and on the western peninsula of Sumbawa; 3) the Bima-Sumba group, spoken on the eastern peninsula of Sumbawa, on the western two-thirds of Flores, and on Sumba; and 4) the Ambon-Timor group, spoken on Timor, the eastern one-third of Flores, and the Solor - Alor archipelago, as well as on most of the islands of the Moluccas. Because the languages of Eastern Indonesia have been studied very little, the precise number spoken in the Lesser Sundas is not known but is believed to be well over 25. Nor is it known to what degree the languages within each group are mutually intelligible, although it is likely that a speaker of one language can make himself understood to a speaker of most other languages within the same major group. Languages in different major linguistic groups are believed to be mutually unintelligible.

The use of the official Bahasa Indonesia has extended into all but the most inaccessible interior areas and to all but the most insignificant islands of the Lesser Sundas. Even in the remoter villages of the archipelago someone is usually conversant in Bahasa Indonesia. Dutch is still spoken by some of the older people of the Lesser Sundas; Portuguese is spoken by the 1,000 or so Portuguese of eastern Timor and by some of the coastal natives there; and various Chinese dialects (chiefly Hokkien) are spoken by the Chinese. Other languages are spoken by only a few, although English is now compulsory in secondary schools.

6. Education

According to statistics of the Indonesian Department of Basic Education and Culture, in the school year 1960-61 there were 2,401 schools in the Lesser Sundas. A total of 10,558 teachers taught 418,227 pupils in primary schools and 23,357 pupils in secondary schools. These figures do not include those Chinese students who were still attending the few remaining private Chinese-language schools, most of which had been closed by government decree in 1957. Rapid strides have been made in the Indonesian educational system in recent years. Most children are attending primary schools, and an increasing number of the graduates are entering secondary schools. Since primary schools are found in nearly every large village and secondary schools only in the principal towns, the vast majority of children still receive only a primary education of 3 to 5 years.

The foundation of today's educational system in the Lesser Sundas, as well as in most other areas of Indonesia, was established in the 19th and 20th centuries by missionaries who opened schools based on the Western educational model. Because of the uneven distribution of missionary activity throughout the Lesser Sundas, educational facilities are similarly spotty. The number of schools on islands such as Roti, Flores, and Timor, where missionary work was particularly intense, is out of proportion to their populations. Few of the schools are now run by missionaries, although in western Flores, where the Catholic church continues to be active, several schools, including a secondary school in Rutang, are still maintained.

As a result of the extension of educational facilities into all but the most inaccessible areas of the Lesser Sundas, the literacy rate of the people is climbing rapidly. However, in spite of recent Indonesian claims that the country is now free of illiteracy (as compared with an illiteracy rate in 1942 of 96 percent), probably only a small percentage of the total population is as yet accustomed to reading a daily newspaper, whether in Bahasa Indonesia or in any other language. Furthermore, many who have attended primary school and who have attained a rudimentary reading ability soon lose that ability because of the dearth of reading material. Expansion of education has created a familiar sociological and political problem -- an underemployed educated elite. Those who achieve an education would rather be bureaucrats than work in the fields, but because the islands of the Lesser Sundas support an essentially subsistence economy, there is little need for bureaucrats.



Figure 83. Sumbawa. Native girls wearing veils. Islam is particularly strong on Sumbawa and purdah is generally practiced.



Figure 84.
Sumbawa. Native couple in ceremonial attire.

7. Occupations

As in all other areas of Indonesia, the great majority of the people are engaged in subsistence agriculture. Throughout most of Bali and Lombok, irrigated rice is grown; but as one progresses eastward through the Lesser Sundas, dryland rice replaces the wetland variety as the major crop, and in the easternmost islands maize forms the dietary staple. Sago, the dietary staple of most of the people of the Moluccas and of many on West New Guinea, is the staple of only a few people of the Lesser Sundas. Pressure of population on arable land is a problem on Bali and, to a lesser extent, on Lombok. Elsewhere in the Lesser Sundas there is no shortage of agricultural land.

Among the Lesser Sunda islands, Bali and Lombok have soils that are exceptionally fertile; soils of the other islands are not. On Bali and Lombok terraced fields of wetland rice prevail, except in the most mountainous regions where dryland rice is grown. The people are expert farmers and practice intensive agriculture. The system of growing wetland rice is highly cooperative and is managed by a village social organization that controls an elaborate irrigation system. In order to assure an adequate supply of irrigation water throughout the year, the peasants in a given area divide each field into a number of tracts and plant each tract at a different time of year. Thus, rice crops are harvested several times during the year in each wetland ricefield.

In addition to the wet fields of Bali and Lombok, some wet fields in the coastal regions of Sumbawa and Timor are devoted to rice; in all other areas of the Lesser Sundas dryland crops prevail. Dryland rice is the major subsistence crop on Sumbawa, although some maize is grown; on the islands to the east, maize is the major subsistence crop and rice is grown only where conditions are favorable. Where dryland agriculture is practiced, the parcels of land to be used for the coming crop are cleared of trees and underbrush during the dry season (May through October). The fields are planted in November just prior to the beginning of the heavy rains. The harvest takes place in April, after the wet season ends. Men do the heavier work such as clearing the fields, while women do most of the lighter work such as planting and weeding. Both sexes harvest the crop. In most areas each family in the village is allotted several parcels of land; each year the family clears the parcel that has lain fallow the longest. In areas such as the interior of Timor, where there is little village organization and probably little cooperation among families of the community, plots may be cleared and abandoned at random. On Timor, which at one time was largely forested,

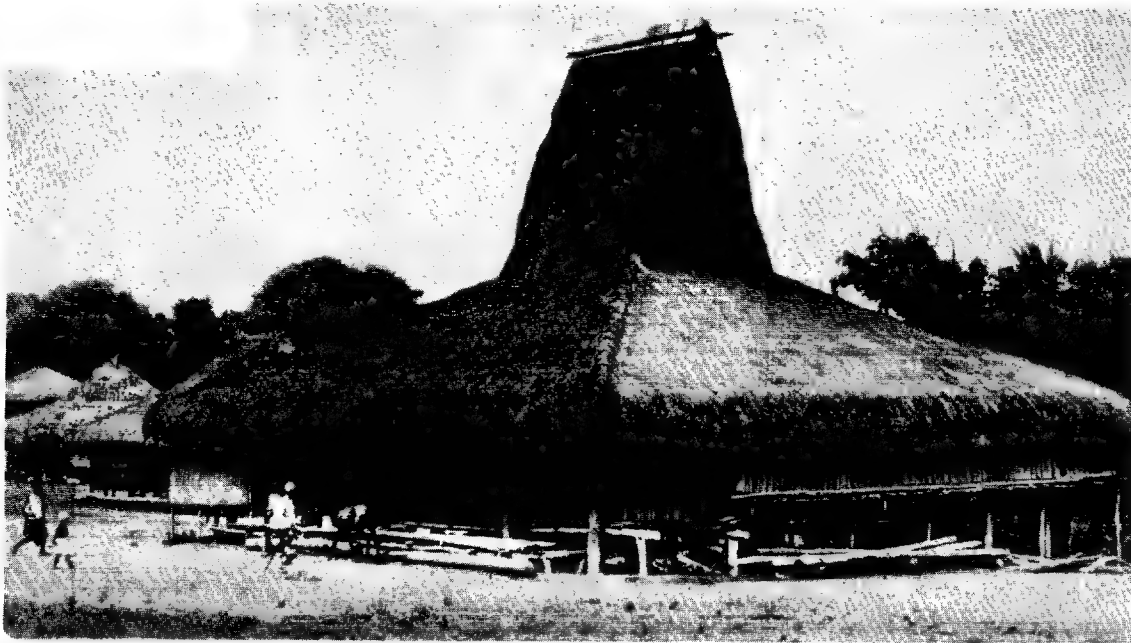


Figure 85. Sumba. Native housing. The high section in center of roof holds offerings to ward off evil spirits. Cattle are penned in the center of the house.



Figure 86. Sumba. Sawunese couple. The people from Sawu Island, like the Chinese, are usually more advanced economically than the peoples of the islands to which they migrate.

S-E-C-R-E-T



Figure 87. Sumba. Man wearing cloth draped over shoulder and type of head-dress worn in much of Eastern Indonesia.



Figure 88. Sumba. Girls in ceremonial attire performing native dance.

-139-

S-E-C-R-E-T

S-E-C-R-E-T

the practice of uncontrolled slash-and-burn agriculture has greatly depleted the vegetative cover and serious erosion has resulted.

In addition to the subsistence crops of rice and maize, a variety of other crops are grown to supplement the diet. These include millet, sweet potatoes, sugarcane, cassava, taro and other tubers, vegetables, and fruits such as coconuts, breadfruits, mangoes, papayas, and bananas. When crop yields are low, the people, who know the edible natural flora of their habitat well, collect plants from the jungle.

Among the cash crops of the Lesser Sundas, coffee is grown for export in Portuguese Timor and on Flores; copra is probably grown on all major islands; tobacco is grown on most islands, principally for home consumption, although some is exported from Lombok; cotton is grown in Flores, and a small amount is exported to neighboring islands. (A survey team from the Soviet Union arrived in Kupang in February 1965 to explore the possibility of establishing large-scale cotton-growing projects in the eastern Lesser Sundas.) Soybeans, vegetables, and spices are grown on Sumbawa for export, and that island often has a surplus of rice that is exported to Flores. Apples have been introduced as a cash crop into Indonesian Timor, but exporting them is a problem, as refrigeration is essential.

During the dry season when the amount of work to be done in the fields is at a minimum, other chores are undertaken. Houses, fences, and guard towers are constructed; fishing, hunting, and collecting jungle products occupy much of the time of the men who then may travel to the markets to sell the products that they have collected -- dyewood, sandalwood, teak, coconuts, birds' nests, and damar resin. Some men may seek seasonal employment with the government during the dry months; lumbering and roadbuilding are the most common of such seasonal jobs.

Although meat from wild game does not form a large part of the diet, the men of the Lesser Sundas do hunt during the dry season. The most common animals hunted are the wild pig, buffalo, and deer; many different birds are also sought. On many of the islands the hunters ride horses during the hunt; the Timorese, in particular, have a reputation as excellent horsemen.

Domestic animals are found in all villages. The pig is probably the most common, although it is never found in Moslem villages. Chickens, buffaloes, dogs, and cats are everywhere. Horses (which are rarely used for draft purposes)

S-E-C-R-E-T

S-E-C-R-E-T

are found on most islands, and on Sumba they constitute the chief export. Although cattle are raised on most islands, their meat is rarely eaten except during feasts, which may occur several times during the year. These feasts actually are bloodbaths; hundreds of cattle as well as pigs are slaughtered -- often by driving them into deep pits and then killing them with spears and stones. The huge quantity of meat left over after the feast is allowed to rot. Cattle are an important export of some of the islands. They are often a measure of wealth, and cattle thefts are a common occurrence. On Timor, thefts of cattle belonging to tribes living on opposite sides of the Portuguese - Indonesian border have led in recent years to border incidents involving direct confrontations between Portuguese and Indonesian officials and troops.

There is some fishing in the rivers of the western islands of the Lesser Sundas (fish are usually not found in the rivers of the eastern islands, which are dry during much of the year) and turtles are caught in coastal areas with casting nets. The people of most of the Lesser Sunda islands, however, are not seafarers and generally are averse to fishing in the sea. Only in the waters around the Solor - Alor island group and in the seas between Roti and western Timor are there significant numbers of fishermen.

For the Western traveler in the Lesser Sundas, the items most universally acceptable for barter are cloth and watches. Coral beads and silver objects are highly prized on Timor; presumably they could be used on other islands as well.

8. Villages and Housing

Villages in the Lesser Sundas vary considerably in site, size, and layout. Most of the people live in the lowlands, where villages are most often along coasts or rivers (commonly built on piles out over the water), or on the lower slopes of the interior mountains. Even though defensive sites are now less frequently used, some villages are still built for defensive purposes on sites higher than the surrounding territory. Villages in the interior mountains are commonly atop mountain spurs. Lowland villages are usually larger than mountain villages, and in general, village size decreases from the western islands -- where villages on Bali and Lombok may support populations of several thousand, to the eastern islands -- where individual houses in the interior of Timor may be miles apart and groups of houses large enough to be called villages rarely found. On Bali the houses are usually arranged parallel or at right angles to a road. Elsewhere, most village layouts have no particular form but most commonly

S-E-C-R-E-T

S-E-C-R-E-T

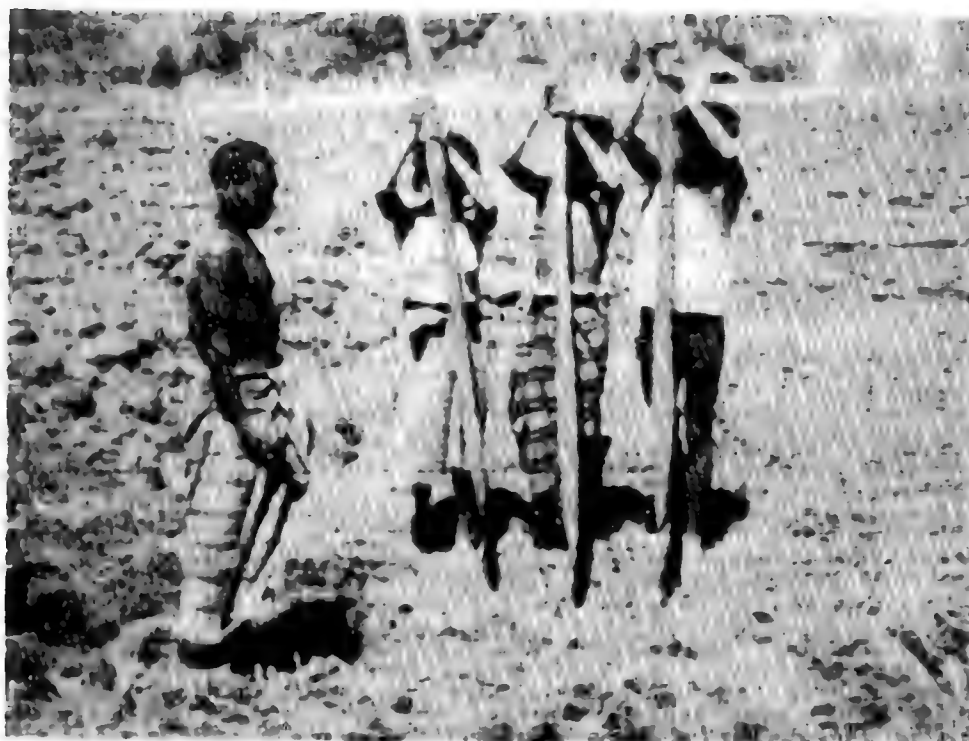


Figure 89. Flores. Farmers with long dibbles preparing ricefield for seeding.

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S-E-C-R-E-T



Figure 90. Flores. Men wearing hats made of banana leaves.

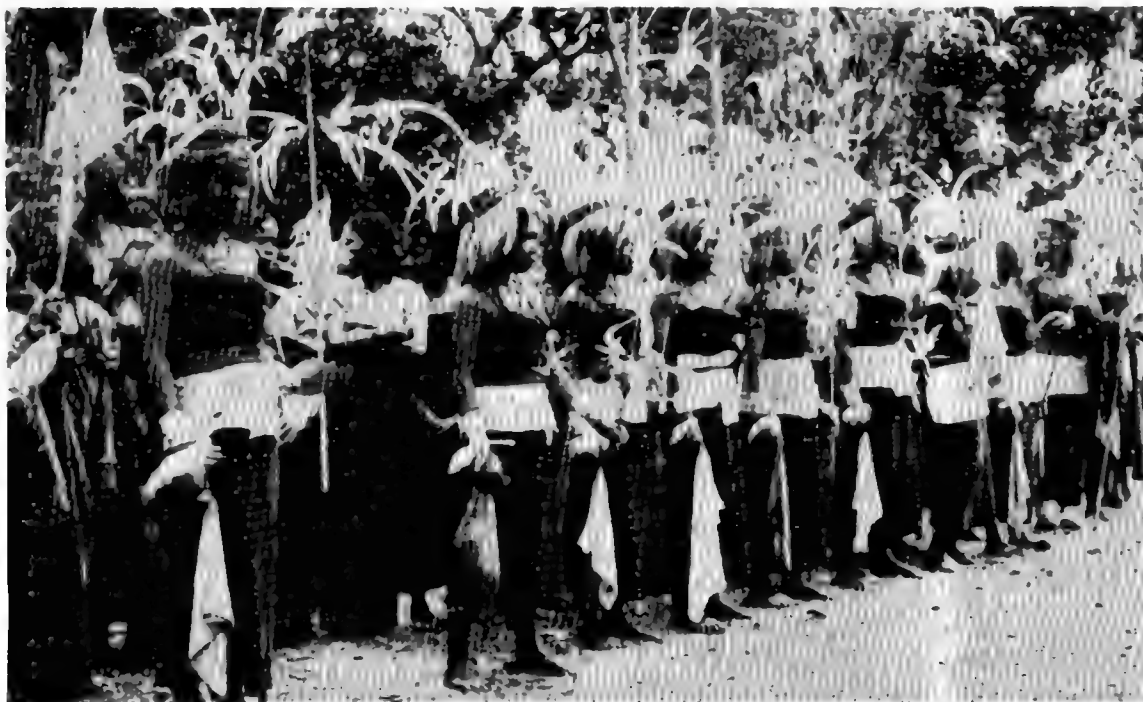


Figure 91. Flores. Women dancers.

S-E-C-R-E-T

S-E-C-R-E-T

consist of a cluster of houses. In the lowlands of Timor, and presumably on other islands as well, a central village contains the rajah's residence, a few stores, various government buildings, and perhaps 8 to 10 houses. It, in turn, is surrounded by outlying hamlets of scattered huts. A village is often surrounded by a stone wall, a bamboo palisade, or, on Bali, by irrigation ditches that are crossed by bamboo bridges. Most villages have a central area of religious significance -- an altar, a temple, and perhaps most commonly, a sacred banyan tree. Council houses, where village elders meet, strangers sleep, and feasts are held, also are characteristic near the center of the village. Numerous small barns for storing grain are scattered through the village. Large villages are divided into individual family kampongs. In some cases, particularly in upland villages, footpaths radiate from a central village to half a dozen small fenced kampongs.

House types also vary from island to island. Houses most often are single-family dwellings, although small multifamily dwellings are found in some areas. Except in the interior areas of Flores and Timor and on the islands of the Solor - Alor group, where crudely built beehive-shaped dwellings of grass thatch are common, houses are rectangular. The rectangular dwellings are usually built on piles about 5 feet off the ground in the western Lesser Sundas but are more commonly built on the ground in the eastern islands. Houses are normally of bamboo or wood-frame construction with walls of palm fronds and roofs of tin or thatch. More solid construction of stone and clay, sometimes with tile roofing, is found on Bali, where sedentary agriculture tends to support villages that are permanent.

9. Dress

Throughout most of the islands of the Lesser Sundas attire is not significantly different from that found on Java. The men usually wear Western-style shirts with shorts or long trousers, commonly with a sarong draped over the shoulder or around the waist. In the latter case, the sarong may be worn instead of trousers. Women also wear sarongs (kains) wrapped around the waist as skirts. A blouse or cloth wrapped under the arms is usually worn on the upper body, although women often go barebreasted when not in public. In the interiors of the remotest islands of the east, particularly in the Solor - Alor group, clothing is far less sophisticated and may consist of only a loincloth for men and fiber skirts for women. Adornments are commonly worn by both men and women throughout the Lesser Sundas, particularly on festive occasions. They include earrings,

S-E-C-R-E-T

rings, necklaces, and anklets of gold, silver, copper, ivory, shell, and bamboo. Tatooing and, to a lesser extent, scarification are practiced on most of the islands.

10. Health and Medical Factors

The level of health in the Lesser Sundas is low, and incidence of disease high. Reasons for this condition are many -- the level of nutrition is marginal among most of the people; sanitary conditions are bad, particularly in rural areas; and most of the people lack any appreciation of the value of good habits of hygiene and resist efforts to change their ways. The people have a fatalistic attitude toward poor health and disease, which they commonly blame on the actions of evil spirits. Therefore, they resist the introduction of modern medicines and modern medical and surgical techniques and continue to rely on the village doctor, whose practice is based on knowledge of the spirit world. Dispersion of the islands adversely affects the control of diseases and the implementation of health measures. Medical facilities are inadequate and there is a severe shortage of medical personnel, particularly in rural areas.

Although eradication programs under the auspices of the United Nations' World Health Organization (WHO) and the US Agency for International Development (AID) have been under way in Indonesia for more than a decade, malaria continues to be the most common of the endemic diseases in the Lesser Sundas. The disease flourishes partly because of the abundance of breeding places for mosquitoes, particularly in lowland areas during the wet season, and partly because of the ineffectiveness of the incomplete eradication program. Tuberculosis has the highest mortality rate of the endemic diseases, but its incidence is considerably less in the Lesser Sundas than on the overcrowded island of Java. In the Lesser Sundas its incidence is highest in the urban areas of Bali and Lombok. Yaws, a contagious disease of the tropics characterized by numerous ulcerous sores on the body, is most prevalent in remote areas where the people are not examined regularly. Considerable progress in combating yaws has been made in recent years. Other diseases endemic to the region include filariasis, various enteric diseases (whose high incidence is due principally to poor sanitary practices), leprosy, and goiter. The last two diseases are most common on Bali.

Hospitals in the Lesser Sundas are confined to the few urban centers. The rural areas are served only by outpatient clinics, which are little more than huts with no medical

S-E-C-R-E-T

S-E-C-R-E-T



Figure 92. Lomblen. Fishing village.



Figure 93. Alor. Native sailboat.

-146-

S-E-C-R-E-T



Figure 94. Alor. Tribal chief.

Figure 95. Alor. Group of island natives. Note strong Papuan characteristics.



S-E-C-R-E-T

facilities, where ailing natives gather to be treated by a doctor from one of the hospitals on the island. Rarely, however, do the doctors make regular circuits into the rural areas. The shortage of doctors has grown particularly acute since the early 1960's, when most of the European doctors practicing in Indonesia had their contracts terminated. A majority of the doctors in Indonesia today are Chinese.

The hospital ship Hope called at ports on Bali and Indonesian Timor (as well as Amboina in the Moluccas) in 1962 and reportedly was very well received. On these islands, as well as in areas such as western Flores where missionaries have introduced modern medical practices and medicines, the people have been quick to learn the value of injections and inoculations and will stand in long lines to receive them for even the most minor ailments. A Western traveler would do well to carry antibiotics such as penicillin with which to treat afflicted natives. Yaws and other tropical infections respond quickly to treatment with such medicines.

11. Attitudes and Loyalties

Paralleling the transition in racial types from west to east through the Lesser Sundas is a change in personality traits of the inhabitants from the generally friendly but reserved Malay of the west to the more excitable, vociferous, and generally less friendly Papuan of the east. A change in the character of the inhabitants of individual islands also is perceptible as one progresses from the coastal lowlands into the interior highlands. In general, the lowlanders -- who have had considerable contact with outsiders -- tend to be friendly, while the people of the interior -- who have had limited contact with outsiders -- are more likely to be shy and suspicious. Hostility to strangers is most intense on the islands of Pantar and Alor, where the inhabitants have long been noted for their warlike nature. The Dutch were never able to bring these islands effectively under their jurisdiction.

The hospitality of the people of the Lesser Sundas is likely to vary considerably from season to season. During the period November through April, when the rice or maize crop is growing and the grain barns are emptying, the peasants tend to be irritable and unfriendly, particularly when the weather is adversely affecting the crop; during the dry season (May through October), when the grain barns are filled, festivals are commonplace and the people are more likely to be in a gay and carefree mood.

The people of Bali and western Lombok generally are more

S-E-C-R-E-T

S-E-C-R-E-T

culturally advanced than the peoples of the other Lesser Sundas. Although now somewhat commercialized, fine arts, dancing, music, drama, and literature are intensively cultivated by the Balinese. Such is not the case on the eastern islands. Perhaps the drabness of the physical environment, particularly during the dry season, has contributed to the squelching of artistic endeavors.

The peoples of the eastern Lesser Sundas have been characterized by Westerners as being lazy and listless. This characterization may be somewhat unjust when one considers that they live in an enervating climate; their needs are minimal, and they have no strong incentive to achieve a surplus of anything; and wages do not especially tempt them, since they desire little more than a full belly and a place to sleep.

Throughout the Lesser Sundas, animosities often exist between the relatively advanced peoples, usually Moslems or Christians occupying the coastal lowland regions, and the relatively primitive, usually pagan peoples of the interior uplands. The hostility between these groups was aggravated during the Dutch colonial administration when the Dutch used the nobility of the lowland regions to facilitate the extension of Dutch hegemony into the interior regions. Even though mutual distrust still exists, the barriers between the two groups are gradually breaking down, mainly because of increasing trade contacts between them. The island of Adonara has often been referred to as "the island of murderers" because of the longstanding and often bloody vendetta between the coastal Moslems and the hill animists. Today there is reported to be only cautious communication between the two groups. Reportedly, intertribal hostilities in interior Timor still produce occasional incidents of headhunting.

In addition to the friction between lowlanders and hill peoples on individual islands of the Lesser Sundas, other longstanding disputes between various indigenous ethnic groups exist throughout the archipelago. For example, the influx of the Rotinese into western Timor has created hostility between them and the indigenous Timorese, although in increasing number of marriages between members of the two groups has probably reduced such tensions. On Lombok, feuds between the 1,200,000 indigenous Sasak people and the 100,000 Balinese who have settled on the western part of the island are longstanding. The nominally Moslem Sasaks strongly resent the better educated and more culturally advanced Hindu Balinese who have dominated political life on the island; communication between the two groups has been minimal. The feelings of the Sasak majority reached a high pitch after World War II, when they massacred

S-E-C-R-E-T

S-E-C-R-E-T



Figure 96. Indonesian Timor. Small community of beehive-shaped houses.



Figure 97. Indonesian Timor. Family settlement.

-150-

S-E-C-R-E-T

S-E-C-R-E-T



Figure 98. Indonesian Timor. Packhorses near village.
Horses are used as pack animals in much of Eastern Indonesia.



Figure 99. Indonesian Timor. Group of men
trading.

S-E-C-R-E-T

S-E-C-R-E-T

many of the Balinese. Yet the regional pride and ethnic loyalty of the Sasaks, other than a small fanatical Moslem group, is not known to have otherwise flared into major dissidence. Throughout the archipelago, disputes between neighboring villages are common and are usually related to local arguments about such things as cattle thefts or land tenure.

As elsewhere in Southeast Asia, the Chinese dominate almost every facet of commerce and trade, and as elsewhere, the indigenes are at the mercy of the Chinese entrepreneur. Although there is considerable resentment of the superior Chinese economic position, the resentment has rarely flared into open hostility. Since the abortive coup attempt of late 1965, however, resentment of the Chinese community has increased and open hostility -- reportedly including large-scale massacres on Lombok and Sumbawa in December 1965 -- has become more commonplace.

Except on Bali, which is oriented more toward Java and the politics of the central government than are the other islands, most of the people of the Lesser Sundas in the past have shown little interest in political matters above the village level. In recent years, however, some elements of the population have begun to show increasing interest in national affairs; even so, among the people living in the remoter areas of the archipelago interest in politics above the village level is strictly passive. Because the central government has done little for these people and because the village chief has continued to function as a tax collector, there has been little noticeable change in the administration of the islands since the departure of the Dutch. The few improvement projects that have been attempted by the central government in the Lesser Sundas, such as the introduction of Balinese cattle on islands other than Bali and road-improvement programs, more often than not have been failures.

Throughout most of the Lesser Sundas, British and Dutch forces had little opposition in liberating the islands from the Japanese in 1945, and the local population apparently gave little support to Indonesia's struggle for independence after the war. By the same token, the Communist defeat and the change in the central government during late 1965 and early 1966 probably have not yet significantly affected the political attitudes of most of the people of the Lesser Sundas. There has been some resentment of the Army personnel, who have assumed administration of the islands since late 1965, because of their heavy-handed manner, disregard for local sensitivities, and ineffective distribution of food supplies. Some resentment is directed toward the Javanese, who hold most

S-E-C-R-E-T

of the government jobs in the islands. The people are not enthusiastic about being ruled by outsiders, although dissatisfaction with rule from Djakarta is not believed to be as intense as in some other areas of Indonesia, such as Sumatra where rich resources are extracted without proportional remuneration from the central government.

After the eruptions of Mount Agung on Bali in 1963, malnutrition and disease were common among the Balinese and have continued to prevail, largely because of neglect by the central government. Despite this neglect, there is little evidence of discontent on Bali. Apparently, the Balinese make no connection between the dire straits of the inhabitants of the devastated regions and the government's lack of action in rehabilitating these regions. They seem content with their traditional way of life and apparently accept hardships and misfortunes as part of the normal world order; economic adversity has not created social upheavals serious enough to cause concern to the central government. Famine was reported to be widespread and thousands believed to have died on Lombok after harvest failures in 1965 but, as on Bali, there were no reports of serious discontent among the people. Like the Balinese, the inhabitants of Lombok apparently placed little blame on the Djakarta government for its failure to provide emergency food supplies.

The attitude of the natives toward white strangers is influenced by local and personal circumstances. The people are generally friendly toward foreigners, although they may still dislike all whites on the few islands where the Dutch colonial regime was unpopular. On islands such as Flores and Sumba, where missionary activity has been particularly intense and popular, a white traveler is likely to be quite well received.

Partly because of the remoteness of the Lesser Sundas and partly because of poor communications, the anti-US demonstrations early in 1965 in other parts of Indonesia apparently had no significant effect on the attitudes of the people of the Lesser Sundas toward the United States. According to Americans who have traveled in the region, the United States is generally looked upon with admiration, respect, and a feeling of real friendship. Most of the people show a genuine interest in the United States, although quite often their knowledge of it is distorted. They have harbored misgivings about some US policies, such as strong anti-Communism, and they are skeptical about US intentions in the face of certain realities in the United States, such as discrimination against Negroes and a continued nuclear buildup.

S-E-C-R-E-T



Figure 100. Indonesian Timor.
Man in traditional attire.
His sword denotes descent from
an ancient family.

S-E-C-R-E-T

S-E-C-R-E-T



Figure 101. Portuguese Timor. Man carrying muzzle-loading rifle. A parang (swordlike knife) hangs from his right shoulder.

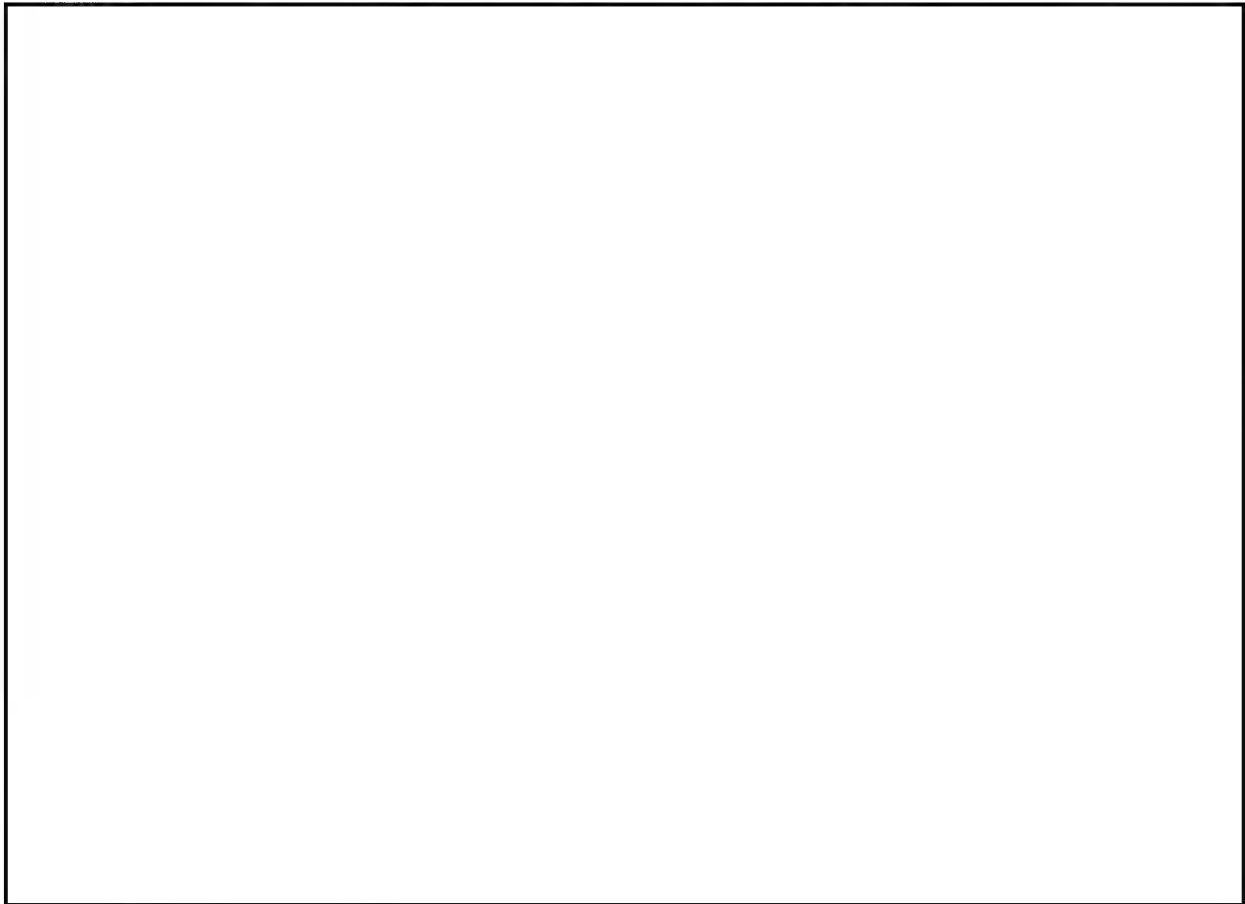


Figure 102. Portuguese Timor. Woman of north-eastern part of island.

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S-E-C-R-E-T

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D. Moluccas

See Figures 103 through 113.

1. General

According to the Indonesian census of 1961, the population of the Molucca Islands (Maluku Province) was 789,534. Because of the remoteness of the region and the dispersal of the people over 2,000 islands, however, this figure is conjectural. The census did not provide a breakdown in the population figure, and the only available information on the population of the various island groups are estimates by visitors to the islands; these vary widely. The following population estimates for the major islands or island groups are derived from these sources.

Amboina	100,000	Batjan	20,000
Aru	30,000	Buru	100,000
Babar	15,000	Ceram	100,000
Banda	20,000	Halmahera	60,000

S-E-C-R-E-T

S-E-C-R-E-T

Kai	50,000	Sula	30,000
Leti	20,000	Tanimbar	35,000
Morotai	25,000	Ternate	60,000
Obi	20,000	Tidore	25,000
		Wetar	20,000

In general, the islands are sparsely populated, with most of the people living in discontinuous coastal stretches. Interior regions are very sparsely populated; large areas are completely uninhabited. The people of the interior usually live in small villages situated along rivers. Amboina and Ternate are the most densely settled islands; many of the small islands are unpopulated. There are few urban centers -- Amboina, on Amboina Island, with a 1961 population of 56,037, is the largest. Smaller urban centers, usually functioning as ports of call, are located on the major islands.

The inhabitants of the Moluccas, like those of the eastern Lesser Sundas, have racial characteristics transitional between the Malay type that prevails throughout most of Indonesia and the taller, darker Papuan type that prevails on New Guinea. In the Moluccas, Papuan traits are generally strongest in the northern and eastern islands. On Halmahera, which is sometimes described as the edge of the Malay World, there are areas in the south where the people are mostly Papuan. Populations of the coastal stretches of the Molucca Islands, particularly in the urban areas, are greatly mixed, as these areas have been veritable melting pots of Chinese, Arab, Dutch, and various ethnic groups from other Indonesian islands such as Java and Celebes. The populations of some of the Moluccas are so completely mixed through intermarriage between aliens and indigenes that the indigenous strain has been completely submerged and a homogeneous blend has been achieved. Intermarriage between natives and the Dutch yielded a Creole type with fair skin and blue eyes but otherwise with Malay characteristics. This highly composite Creole Moluccan is most numerous on Amboina, Ternate, Tidore, and on the Batjan and Banda Islands, all of which were heavily involved in the spice trade.

2. Movement of Population

The population moves about considerably within the individual islands of the Moluccan group, especially in the interior regions where the people are seminomadic. Interior villages may be moved every half dozen years or so as the soils of the village fields become depleted. The men of the interior villages leave for long periods while collecting sago as well as forest products such as damar resin, coconuts, and spices which are traded to the coastal people. Coastal

S-E-C-R-E-T

S-E-C-R-E-T

villages are more permanent, although their inhabitants, particularly the men, spend considerable time during the growing season away from the village in temporary huts erected in the fields -- several miles away in the interior. The fields are moved every few years, but the coastal villages are usually moved only every 20 years or so.

Movement of people between the islands of the Moluccas is also common. During exceptionally dry periods on some of the southern islands such as Kisar or Leti, entire villages may migrate to neighboring islands such as Romang or Moa in hope of finding better conditions; they usually return to their home island as soon as the drought is over. Many of the peoples of the Moluccas are seafarers who sail throughout Eastern Indonesia fishing and trading. The Tidoreans in particular are noted for their skill as sailors. Many floaters drift through the Moluccas. These people, who have originated from a number of islands in the Moluccas as well as from other Indonesian islands, settle temporarily in the coastal area of an island while they hunt, fish, and collect jungle products and spices or dive for pearls. They remain on any one island for only brief periods. Some of them, those called Orang Lauts (Sea Nomads), live on their boats. These sea nomads are also found in large numbers in other parts of Indonesia, particularly along the eastern coast of Sumatra and along the shores of the Riau Islands.

In addition to the floaters from other island groups, there are permanent settlers from these islands as well. Large numbers of Javanese from Java, Bugis and Makasarese from Celebes, and various peoples from other islands have settled in coastal areas throughout the Moluccas, where most are employed as merchants, traders, or government officials. The officials administering the transmigration program of the central government have generally ignored the Moluccas as an area in which to settle peasants from the overcrowded islands of Java, Madura, and Bali. Some 250 Javanese families were reported to have been resettled on Ceram in 1954-55, but many of them are believed to have returned to Java. In addition, plans were drawn up by the GOI in 1964 to resettle 1,500 Balinese on Buru. This resettlement plan had a two-fold purpose: 1) to alleviate the population pressure in the areas of Bali devastated by the volcanic eruptions of 1963 and 2) to introduce wetland-rice cultivation on Buru. Other such transmigration ventures may have been attempted but probably have been on a smaller scale and, judging from the results of most Indonesian transmigration schemes, have probably not been overly successful. There is a flourishing barter trade between West New Guinea and Halmahera and the Kai and Aru island groups, and many of the Papuan traders

S-E-C-R-E-T

S-E-C-R-E-T



Figure 103. Halmahera. Men from Gebe and Pattani Islands between Halmahera and West New Guinea. Note strong Papuan features.



Figure 104. Halmahera. Women from Gebe Island.

S-E-C-R-E-T

S-E-C-R-E-T

from West New Guinea have settled permanently on Halmahera in the past 30 years. They have not assimilated with the Halmaherans; instead, they have settled in large isolated villages and have established only limited communication with the indigenous communities.

Fearing reprisals from the GOI, a number of Ambonese * who had served in the Dutch Colonial Army during the last years of the Dutch reign in the East Indies, along with their families (totaling about 12,000), emigrated to Holland when Indonesia was granted its independence in 1949. Reportedly, most of them have had difficulty adapting to their new homes. Some still live in the army barracks where they were originally received. Although several hundred were repatriated in 1961 and another 1,000 who had expressed a desire to return to Indonesia were to have been repatriated in 1964 and 1965, the majority are believed to prefer to remain in the Netherlands, mostly because they fear possible reprisals by the GOI. The 1964-65 repatriates reportedly were to spend 6 months in camps in Indonesia until the central government could assign them permanent abodes.

3. Social System

Traditionally, society has been divided along class lines in the Moluccas. The class system -- which consisted of nobles, commoners, and descendants of slaves -- is breaking down, however, in the strife of conflicting social forces. The highly stratified traditional system within which there is little intercourse between the classes is believed to remain on only a few islands; on most, the classes have degenerated into status groups without fixed rules of heredity or strict marriage prohibitions. Even on those islands where the class divisions have degenerated, however, descendants of nobility continue to dominate the ruling hierarchy. Nobles were incorporated into the administrative system during the Dutch colonial reign and their influence has not been entirely vitiated by the present government. Although considerably diminished, the influence of the nobility continues to be strong on Ternate and Tidore, where the sultan system was well developed during the Dutch regime. During that period, the power of the Sultanates of Ternate and Tidore

* The term "Ambonese" has traditionally been applied to the Christian population of the central Moluccas, more especially to the inhabitants of Christian villages on the islands of Amboina, Saparua, Haruku, and Nusa Laut as well as the southwestern part of Ceram.

S-E-C-R-E-T

S-E-C-R-E-T

extended into many of the neighboring islands.

The hierarchy of these descendants of nobles, whose principal function within the central government appears to be the collection of taxes, begins at the village level. The village headman, acting on the advice of the elders of the village, decides on use of the village land, metes out punishment for minor crimes, plays a leading role in social ceremonies and religious rites, serves as arbitrator and mediator in local and intervillage disputes, and serves as a judge in such matters as debt, inheritance, and divorce. The authority of the village chief is reinforced in the eyes of the villagers by his position as spokesman in dealing with the lower echelons of the GOI. On most islands loose alliances are formed among several neighboring villages, and the headman of one of the villages acts as a supreme chief over the others. Sultans and other noble princes have fitted into the ruling hierarchy above the village and village alliance chiefs. On some smaller islands, each village is independent and there are no chiefs above the village level.

In spite of the existence of the vestiges of a well-defined class system with descendants of the noble class continuing to dominate local politics, society is fairly democratic. The people of the village, through their village elders, have a strong voice in local affairs. Untilled land is owned by the community; cultivated land is controlled by individual families. The village headman determines the apportionment of the land to the village families for tilling. In some of the more densely populated regions, control of the untitled community land may lead to intervillage squabbles.

A traditional cultural feature of the Moluccas is the pela league, an institution that creates political and social ties between two or more ethnic groups or villages, often far apart, frequently on different islands, and sometimes of different religions. It is intended as a permanent relationship, and the parties involved avow to support each other in war or in case of need, such as crop failure or epidemics, when they may share crops and other food or property. Although, strangely enough, intermarriage between pela partners is usually taboo, they may also assist each other during weddings, burials, or birthday feasts. Severance of pela ties is rare. Although most pela alliances have been established for many years, new leagues may come into existence at any time. The pela leagues are best developed on Amboina, where the custom is reported to be very strong. The importance

S-E-C-R-E-T

S-E-C-R-E-T



Figure 105. Buru. Fishermen at Namlea.



Figure 106. Buru. Native girls showing Western influence in clothing.

S-E-C-R-E-T

S-E-C-R-E-T

of the pela leagues to the participants is demonstrated by the fact that among the Ambonese residential camps established in the Netherlands in 1949 the pela relationships of the village communities continued to be respected.

4. Religion

Although Christianity made great inroads on many of the Molucca Islands during the several centuries of Portuguese and Dutch influence and although Islam has attracted converts throughout the archipelago for many centuries, probably the majority of the Moluccan people continue to cling to their traditional animistic tenets. Even among those who have adopted the Christian or Moslem faiths, animistic beliefs have remained near the surface. Although the elements of animism differ from island to island, certain beliefs are common to all. These beliefs do not differ significantly from those prevailing in other parts of Indonesia. Animists believe that various spirits, both malevolent and benevolent, dwell in natural phenomena. The sun, for example, is worshipped on most islands, and on Ceram each tribe worships a sacred mountain from which the tribe is believed to have derived its origin. Spirits of ancestors considered to be the guardians of the community are believed to be housed in manmade images which have been carved from wood or stone. These are kept with an altar and a holy banyan tree located near the center of the village. The image which is believed to house the soul of the founder of the village is particularly revered. In some areas each house has its own protecting spirit, an image carved in the front wall. Offerings are presented from time to time, along with appropriate magic rituals, to appease the spirit world.

A festival is held at the end of the harvest season among the animist groups of the Moluccas. During the festival the religious leaders of the community go into self-induced trances in an effort to drive the evil spirits from the community and to attract the good ones. The festival, which is the high point on the social calendar for the villagers, is an occasion of great merriment -- masquerading, wild dancing, and much food and drink.

Christian missionaries have been quite active in this part of Eastern Indonesia during the past 200 years, and there are believed to be some Christian converts on all but the smallest and most inaccessible islands. Christianity has attracted the greatest numbers of converts on Amboina, where about two-thirds of the people are at least nominally Christian. Large numbers of people in the western and southern parts

S-E-C-R-E-T

S-E-C-R-E-T

of Ceram as well as on the small neighboring islands also have been converted to Christianity. In addition, significant numbers of Christians live on the Banda Islands and the Leti Islands, and somewhat fewer live on Buru, Halmahera, Kai, and Tanimbar.

Islam also has gained a considerable number of converts, even though there has been little missionary activity as such on its behalf. As a rule, a pagan is more inclined to embrace Islam than Christianity, since the latter is less likely to make allowances for deeply rooted animistic concepts.

The GOI has done little to encourage the conversion of Moluccan natives to Islam, and most "alien" Indonesians (Javanese, Bugis, and others) living in the Moluccas have done little to spread the word of Allah. Even so, it is probable that with the steady decline in the number of Christian missionaries operating in Eastern Indonesia since the ouster of the Dutch and the gradual extension of Javanese administration into the region the influence of Islam has risen while the influence of Christianity has declined.

Other than the "alien" Indonesian traders, few Moslems are in the southern arc of the Molucca Islands, including the southeastern islands of Aru, Kai, and Tanimbar. A considerable number of Moslems (mostly "aliens") are in the Banda Islands, on Buru, and in the Sula Islands; and Ternate, Tidore, and the Batjan Islands are predominantly Moslem. A few hundred Moslems live on Halmahera and Morotai, and a few Moslem "aliens" have settled on Amboina and Ceram in recent years. Wherever they live in the islands the Moslems are concentrated along the coast.

In many instances Christian and Moslem villages, which aside from religion are similar culturally, are found side by side. Bloody disputes between Christian and Moslem communities persisted well into the 20th century; and reportedly even now considerable social ferment in the Moluccas is caused not only by the breakdown of traditional customs but also by continuing rivalry between Christian and Moslem communities.

5. Language

All the languages spoken in the Moluccas -- except some Papuan-related ones in the northern part of Halmahera, on Ternate, and on Tidore -- are of the Ambon-Timor group

S-E-C-R-E-T



Figure 107. Amboina. Houses in port area.



Figure 108. Amboina. Ambonese fishermen.

S-E-C-R-E-T

S-E-C-R-E-T

Figure 109. Amboina.
Ambonese youths. Note
mixture of Malay and
Western dress.



Figure 110. Amboina.
Ambonese women dancing.



S-E-C-R-E-T

S-E-C-R-E-T

of the Malayo-Polynesian linguistic family, which also prevails in the eastern islands of the Lesser Sundas. Wherever the island groups are in close proximity to one another and much intercourse has been possible -- for example, the Ceram, Buru, and Amboina group and the Halmahera, Morotai, Tidore, and Ternate group -- the languages, although independently developed, are likely to be mutually comprehensible. In contrast, peoples of more widely separated islands are unlikely to be able to converse with one another. On many of the larger islands several tribal dialects are spoken, and some of them may be mutually incomprehensible. Most people living in the coastal areas of the Moluccas, particularly in urban areas, speak Bahasa Indonesia; many older people on Amboina and neighboring islands presumably speak Dutch; English is not widely used.

6. Education

In the school year 1960-61, there were 3,264 teachers and 126,369 students in 838 schools in the Moluccas, nearly all of them at the primary level. Educational facilities are unevenly distributed. There are reported to be more schools per unit of population, with accompanying higher levels of literacy, on Ternate, Tidore, Amboina, and the Banda Islands than anywhere else in Eastern Indonesia. Educational facilities on most of the other islands of the archipelago are inadequate, although the rapid strides being made by the GOI in the field of education in recent years have probably resulted in a significant increase in facilities and teachers. Also as a result of the educational program of the central government, illiteracy has been greatly reduced throughout the Moluccas, and a majority of the children now are in school and are literate. Many of the older people, however, are unable to read and write, and some villages (particularly in interior regions) still have no schools.

7. Occupations

The great majority of the people of the Moluccas live a hand-to-mouth existence. Sago, a dry starchy powder derived from the pith of the trunk of the native sago palm, forms the dietary staple of most people. Even though it has little nutritional value, it is eaten at every meal -- sago porridge for breakfast, sago bread for lunch, and sago pudding for dessert. Sago palms are sometimes cultivated, but most of the sago used is gathered from the forests. Maize is the staple crop (with sago supplementing the diet) in the islands of the southern arc of the Moluccas, extending as far east as the Tanimbar group. Rice is the staple in coastal regions of

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Ceram, Amboina, and neighboring islands. Most of the rice eaten by so-called alien groups (Javanese, Chinese, and others) in the urban areas is imported from other Indonesian islands. Other crops grown to add variety to the diet include coconuts, sugarcane, millet, cassava, sweet potatoes, beans, and other vegetables, and melons, mangoes, bananas, and other fruits. Because food is relatively abundant in the forests, fields are usually small and never yield more than is needed by the village.

The diet of most Moluccans is deficient in protein, notwithstanding an abundance of protein sources. Meat is not a regular part of the diet, although large quantities may be consumed during festive occasions. On some islands, however, stockraising is significant and large herds of cattle, sheep, and goats are commonplace; livestock from these islands are sometimes exported to other Indonesian islands. Chickens are found in nearly every village; pigs are numerous in all but Moslem villages. Reportedly, dogs are eaten on Buru. The people hunt deer, wild pigs, and various types of birds. The bow and arrow is most commonly used for hunting, although the blowgun with poison darts is reported to be in use on Halmahera and may be found on other islands as well.

The seas surrounding the Molucca Islands are rich in sea life. Fish, perhaps more than animals, provide protein for the native diet. Turtles and trepang (a wormlike aquatic animal that, when boiled, dried, and smoked is prized by the Chinese for making soup) are commonly sought within the reefs around the islands and are either consumed by the natives or traded to Chinese merchants in the urban markets. Pearls are also obtained from around the reefs. Most fishing takes place inside the reefs, although the peoples from Tidore, Halmahera, and Tanimbar are renowned sailors and fish in waters throughout the archipelago. The Banda Sea south of Ceram and the Molucca Sea between Halmahera and the eastern tip of Celebes are particularly good fishing waters. Although the natives fish primarily to supplement their diet, they sell or trade some fish in the native markets and, reportedly, the Tidoreans transport salted fish to Celebes to trade. On most islands, each coastal village claims ownership of that part of the sea on which its community land borders, and quarrels between villages concerning the control of these waters are frequent.

Natives collect products of the forests -- damar resin, rattan, copra, nutmeg, cloves, and other spices -- and make small articles such as mats, straw hats, sarongs, and other cloth products and trade them to merchants in the coastal towns.

S-E-C-R-E-T

S-E-C-R-E-T

These merchants are usually Chinese, Arabs, or "alien" Indonesians, particularly Javanese or Bugis. On some of the smaller islands where there are no markets, the islanders take native products to other islands where they can be used in trade. Such trading expeditions to ports as distant as Kupang on Indonesian Timor are commonly undertaken by the islanders of the southern arc of the Moluccas. In addition to domestic trade there is believed to be a small illegal flow of forest products from Halmahera and Morotai to the markets of southern Mindanao in the Philippines.

Only on Amboina is the central government well represented; there a large number of white-collar jobs are available in the government service. Although most of these positions are filled by Javanese, some are filled by Ambonese. Because they were well educated and well trained during the Dutch administration, the Ambonese today continue to have a greater number of skilled workers than any other group indigenous to the Moluccas and are sought for a wide variety of positions outside their home island.

8. Villages and Housing

Most of the people in the Moluccas live on or near the coast in villages that are often hidden in groves of palms. In the past, when intertribal warfare was rife, villages were more commonly situated atop remote hills in the interior for defensive purposes; now that intertribal disputes are usually settled by less violent means, most villages in the interior are located along river valleys. Although most villages were once surrounded by high walls of stone or coral and admittance was gained only by ladders that were drawn up during siege, few remnants of these fortifications remain. Coastal settlements rarely have populations over 1,000; settlements in the interior are considerably smaller, with populations usually under 200.

Most houses in the Moluccas are fairly small crudely built single-family structures of wood, bamboo, and thatch; but in some areas, notably Ceram, Halmahera, and the Kai Islands, houses are up to 150 feet in length and are occupied by several families. In coastal villages houses are usually built closely together in rows; the arrangement of houses in villages of the interior conforms to no particular pattern. Houses in coastal regions are generally built on the ground, although some are built on coral blocks; houses in the interior, because they are generally located along rivers subject to flooding, are usually built on piles several feet above the ground.

S-E-C-R-E-T

S-E-C-R-E-T



Figure 111. Tanimbar. Natives of Jamdena Island in traditional attire.



Figure 112. Tanimbar. Woman wearing ceremonial attire with headdress of feathers.

S-E-C-R-E-T

S-E-C-R-E-T

9. Dress

As elsewhere in Eastern Indonesia, primitive attire consisting of a loincloth for the men and fiber skirts for the women is found only in the remotest interior regions. Coastal people wear Malay-style dress -- Western-style shirts, jackets, and trousers, often with a sarong wrapped around the waist, for the men; loose-fitting blouses and sarongs for the women. Headdresses of various types are found on all islands; decorative ones of feathers are worn on festive occasions, simple ones of cloth are part of the everyday attire. Ornaments vary widely, but earrings, necklaces, and armbands of various materials are common to all islands. Scarification of the upper arms, bleaching of the hair with lime, and filing of the teeth are still believed to be practiced on some of the remote islands.

10. Health and Medical Factors

The general level of health is low on all of the Molucca Islands. The incidence of malaria, filariasis, and yaws and other skin diseases is the highest in Indonesia, excluding West New Guinea. Infant mortality is high, reportedly 25 percent on Morotai. Reasons for widespread poor health are many, including the facts that 1) hygienic practices are poor, and there is no desire to change them; 2) diets are inadequate; sago, the staple of most of the people, has little nutritional value; and 3) the Moluccas, more than the other outer islands of Indonesia, have been neglected by the central government, and health-improvement programs have been few. A yaws eradication program in the 1950's reduced the incidence of that disease on some islands significantly, although it is still very high. As in the Lesser Sundas, penicillin (which is effective in curing yaws) would be invaluable to a traveler attempting to gain the confidence of the natives.

Hospitals are located in the chief urban centers of the major islands, and outpatient clinics are scattered in the rural areas. The Moluccas have few doctors, particularly since the departure in recent years of most of the European doctors.

11. Attitudes and Loyalties

In general, the peoples of the Moluccas lack the reserve, outward serenity, and formality of the Javanese and other peoples of the Indonesian islands to the west; vivacity, irascibility, and unrestrained frankness are traits common to most Moluccans. Many of the Moluccan peoples have

S-E-C-R-E-T

S-E-C-R-E-T



Figure 113. Leti. Women of Moa Island in ceremonial attire.

S-E-C-R-E-T

S-E-C-R-E-T

had reputations for warlike activity, including headhunting before and during the Dutch colonial regime, but most such activity has been suppressed during the past century. Incidents of intertribal warfare in recent years have been few, and most peoples are now considered to be peaceable and friendly toward outsiders, although minor squabbles between villages are not uncommon. The character of the peoples varies from island to island, however, and in some cases groups living on different parts of the same island have distinctly different temperaments. The peoples of western Ceram, for example, tend to be excitable and warlike; they were among the most ferocious headhunters in the Dutch East Indies. Their headhunting exploits were quelled by the Dutch, but they remain today a rather bellicose people, and reportedly make forceful friends and deadly enemies. Tribes in eastern Ceram, on the other hand, are mild mannered and undemonstrative. Similarly, the tribes of northern Halmahera are boisterous and unfriendly, whereas those in the south are quieter and more hospitable.

Westerners (mostly Dutch administrators and missionaries) who have lived in the Moluccas have often characterized the people as being indolent and unambitious, having no concern for providing for the morrow --- a characterization that can be applied to most indigenous peoples of tropical areas where the climate is enervating and the food plentiful. The Dutch considered the Ambonese more intelligent and more adaptable to Western ways than other peoples of the Moluccas; the Ambonese therefore filled many of the civil service positions under the Dutch and acquired a degree of sophistication.

As in much of Eastern Indonesia, the personal image of President Sukarno has been a symbol of the unity of the country and he has been revered by the people; otherwise, most of the people of the Moluccas are politically indifferent. Many in the remote areas probably know little about the central government; others feel that the central government is an implacable monolithic force over which they have little control. Although a sense of nationalism is growing, some resentment against the government remains because of its neglect of the Moluccas, and some resentment of its Javanese administrators is evident because of their supercilious manner. Under GOI rule, most of the islands have suffered a deterioration in central government services, including the provision of rice rations to rice-deficient areas. The people accuse the central government of taking funds derived from the sale of copra and other local products and of giving little in return by way of projects to raise the standard of living. The several thousand Javanese troops who were stationed in the Moluccas during Indonesia's military buildup in 1962, in preparation for the annexation of West New Guinea, were strongly

S-E-C-R-E-T

S-E-C-R-E-T

resented. Antigovernment feeling is strongest on Ceram, Amboina, and associated islands; the people of other islands have not been as vocal in their hostility.

The reluctance of many of the peoples of the Moluccas to become part of the Republic of Indonesia resulted in the creation of the Republic of the South Moluccas (RMS) movement in April 1950. The RMS -- which included the islands of Buru, Ceram, Amboina, Wetar, Tanimbar, and Aru -- was to be a completely separate nation organized along religious and ethnic lines. Most of the RMS forces were made up of anti-Javanese Christian Ambonese (many of whom had served in the Dutch Colonial Army) who were unwilling to join the forces of the new Indonesian Republic. Although the back of the RMS rebellion was broken in a matter of months, remnants of the Ambonese rebel forces escaped to Ceram and continued intermittent resistance there. The movement may still draw the sympathies of separatist-minded Moluccans, but rebel activity in recent years has been sporadic and ineffective. The likelihood of any further revolt is slight; such a movement would have to have good prospects for success before it could hope for the stand-up-and-be-counted support of the people. After the defeat of the RMS forces on Amboina in 1950, when the city of Amboina was leveled by GOI forces, the formerly vital, efficient, and aggressive Ambonese reportedly became listless and indifferent. The marked change in attitude was believed to be the result of uncertainty about the future and their humiliation at being governed by the Javanese, whom they considered to be their inferiors.

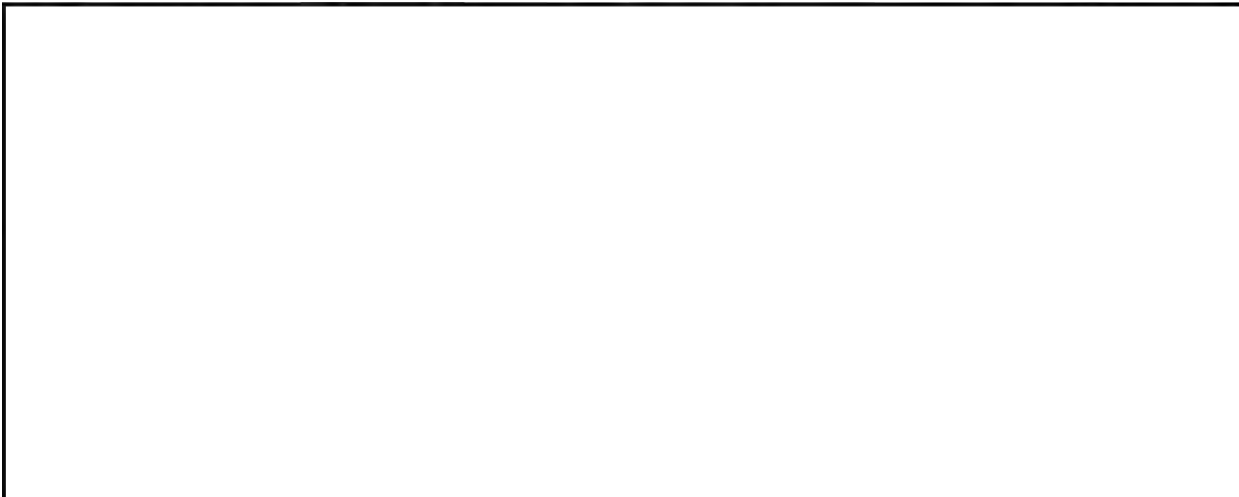
The attitudes of the Moluccans toward non-Indonesians varies considerably from island to island and depends to a large degree on past relationships between local people and outsiders. In general, the peoples of the southern arc of islands as far east as Tanimbar are least likely to be receptive to visits by white strangers. On these islands there was considerable hostility against the Dutch because of the strong and repressive actions that the colonial government took to check intertribal disturbances. The Dutch tried with little success to inculcate the people of the southern islands with Dutch attitudes and values, and vestiges of hostility toward the Dutch may remain on some of these islands and may influence feelings toward other whites. On most other islands in the Moluccas, the people were generally subservient to Dutch authority.

Attitudes of the people toward white strangers are most likely to be favorable on Halmahera, Morotai, Ceram, Amboina, and associated islands. On Amboina and, to a lesser extent,

S-E-C-R-E-T

on Ceram and the smaller islands between the two the Dutch presence was strong, as the Dutch recruited most of the soldiers for their colonial army and many civil servants for minor government positions from these islands. Although the Ambonese have a strong sense of independence, they developed a firm sense of loyalty to the Dutch. Their loyalty was demonstrated in 1939 when Germany invaded Holland. The Ambonese reportedly were upset, and Germans were warned not to travel into the interior of Amboina or to other islands of this group lest they be shot as Nazi sympathizers. Later the Ambonese demonstrated remarkable courage in defending their islands against Japanese attack during World War II and, while most of the people on other Indonesian islands put up little resistance to the Japanese occupation, the Ambonese resistance was so strong that the Japanese felt compelled to imprison them. The Ambonese reportedly took readily to Dutch military training and discipline, and during the Indonesian struggle for independence most of them took the side of the Dutch.

White strangers are likely to be favorably received on Morotai and in northern Halmahera partly as a result of contacts with American troops on Morotai during World War II. (Halmahera remained under Japanese occupation until the end of the war, but many Halmaherans sailed to Morotai, which was occupied by American forces during most of the war.) Although they presumably knew little about the United States and the ideology of its government, the natives were greatly impressed with American generosity and with their technological know-how and use of mechanical equipment to build roads and airfields. According to sources who have traveled on Halmahera and Morotai in recent years, a reservoir of goodwill toward Americans still remains.



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S-E-C-R-E-T

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E. West New Guinea

See Figures 114 through 125.

1. General

West New Guinea, which had been in dispute between the Netherlands and Indonesia since the latter achieved independence in 1949, became an official Indonesian province (Irian Barat) on 1 May 1963. Although in theory its provincial status puts West New Guinea on an equal political footing with the other 24 provinces of the country, in practice the central government governs it more like a colonial territory. In contrast to the more advanced islands of the rest of Indonesia, West New Guinea is underdeveloped economically; its people, for the most part, still have a Stone Age culture. In view of this cultural lag, most other Indonesians do not (and probably will not for a good many years) consider the inhabitants of West New Guinea to be fellow Indonesians. The general attitude toward these people is paternalistic, not unlike the attitude of the former Dutch colonialists toward their subjects throughout the East Indies. For this reason, the term "Indonesians" as used in this section signifies only "alien" Indonesians; it does not include the native inhabitants of West New Guinea.

Because the people have never been systematically enumerated, there is no reliable information on the population of West New Guinea. Most sources estimate the population at about 700,000, but because extensive regions in the interior are unexplored, this figure may be low. Some authorities suggest that several hundred thousand people may be living in unexplored parts of the Central Highlands.

Overall population density is estimated to be about four persons per square mile. The northern coast of West New Guinea and its offshore islands -- particularly Biak, Noemfoor, and Japen -- are relatively densely populated. Most of the people are clustered in small villages, usually near the mouths of rivers. The mountainous core of West New Guinea is generally sparsely inhabited, and nearly all the people are concentrated in the intermontane valleys; smaller concentrations are scattered in the hill country on the southern flanks of the ranges. The Baliem Valley in the eastern part of

S-E-C-R-E-T

S-E-C-R-E-T

the Snow Range and the basins surrounding the Wissel Lakes in the west are the most populous regions in the mountains; they support densities of up to several hundred persons per square mile. The large Meervlakte Depression is sparsely inhabited. The southern half of West New Guinea is poorly drained and supports only a small population; most of the people live along the rivers or on the coast.

The major urban areas and their estimated populations are: Sukarnapura (18,000) on the northern coast; Manokwari (12,000), Sorong (8,000), and Fakfak (3,000) on the Vogelkop; Merauke (6,000) on the southern coast; and Seroei (3,000) on the southern coast of Japan.

With the exception of a few Westerners (mostly missionaries) and the Indonesians (estimated at 16,000 in 1964, almost all of whom were government officials), all the people of West New Guinea are of negroid stock. Although they all have dark skins and short woolly hair, they are divided into three broad groups on the basis of great physical diversity in other respects: 1) the Negritos of the central mountain region; 2) the Papuans, who form the predominant group in the lowlands and in the bordering mountainous areas; and 3) the Melanesians, who occupy scattered stretches of the northern and western coasts. Because of the isolation of the Negritos, there has been little intermarriage between them and the other two groups, but the Papuans and Melanesians have intermixed considerably.

The Negritos, who are believed to be related to the pygmies of the Congo, Malaya, and the Philippines, are descendants of the first wave of migrations through the Malay Archipelago. They are characterized by their short stature (males average about 4 feet 9 inches), round heads, broad noses, and prominent jaws. They are strong and wiry, are generally well proportioned, and have no signs of deformity or dwarfism.

The physical characteristics of the Papuans are more varied. In general, the men average about 5 feet 6 inches, with slender build (although the Papuans living in the higher regions generally are stockier and more muscular). They have narrow heads and coarse features -- protruding brows, close set eyes, and large aquiline noses, some decidedly Semitic. They are generally hairy; some have full beards. Although they bear a strong resemblance to the aborigines of northern and western Australia, their forebears were part of an early wave of migration from Asia.

The Melanesians, unlike the Papuans and Negritos who originally migrated to New Guinea from islands on the west,

S-E-C-R-E-T

S-E-C-R-E-T

are believed to have migrated from Melanesia on the east and to have arrived on the island later than the other two groups. They are found scattered along the northern coast and on parts of the islands that lie off the northern coast. (Larger number of Melanesians are in Australian New Guinea.) They are physically similar to the Papuans, although they generally are taller and more slender and have broader heads, finer features, and darker skins.

2. Movement of Population

Because of the restrictive nature of the terrain, population movement in West New Guinea is generally channeled into river valleys, and there is little communication between people living north of the high central mountainous backbone and those living to the south. Movements of population fall into three main categories: 1) entire villages in search of food; 2) defeated tribes in search of security; and 3) restless individuals in search of better living conditions. Nearly all natives are seminomadic; every few years, whenever the food supply becomes exhausted or the soil depleted, they move their villages a distance of several miles upstream or downstream. In some instances, when its gardens are no longer productive, a village migrates a considerable distance from the interior to coastal areas to fish and collect sago. Although inter-tribal warfare has been largely suppressed, it does still occur, and weaker tribes are pushed into undesirable isolated areas by more militant tribes. This type of population movement has been quite common in the populous Baliem Valley, where wide areas of no man's land have been left as buffer zones as the less assertive tribes have retreated into the more remote parts of the valley. Since pacification, however, many of these tribes have returned to claim the land that they or their forebears once abandoned to their enemies. Villages are generally self-contained and maintain little contact with one another, but this isolation has been breaking down since World War II, and increasing contact with outsiders -- including Indonesian -- has prompted many natives to escape the monotony of village life and migrate to the coastal towns, particularly Sorong and Sukarnapura. Many of these natives in the urban areas subsequently return to their villages, often because of unemployment, and this has tended to open up the villages to new ideas and reforms. Some who return to their villages again become discontented with the traditional way of life; and so, once again, they migrate to the city. An estimated 3,000 natives of West New Guinea now reside in cities elsewhere in Indonesia, about 1,000 of them in Djakarta.

Because the boundary between the Indonesian and Australian parts of New Guinea is inadequately marked (even though more

S-E-C-R-E-T

border markers have been erected since Indonesia gained control of West New Guinea in 1963), most natives living in the border regions are unaware of the existence of a border and cross it at will. Many villages reportedly control land on both sides of the border.

As part of its transmigration program to resettle peasants from the overpopulated islands of Java, Madura, and Bali to the sparsely inhabited outer islands, the Indonesian Government announced a plan to resettle about 1,000 Javanese in the Merauke region of southeastern West New Guinea, where wetland rice can be grown. Reportedly, 25 families had been sent to Merauke by August 1963, but more recent reports indicate plans for moving several thousand Javanese per month to West New Guinea. Indonesia's transmigration schemes have rarely been successful, however, and it is doubtful that large Indonesian communities will develop. If they do they are likely to cause resentment and create hostility among the natives.

3. Social System

Among the natives of West New Guinea, the lack of any political unity above the family unit is almost complete. The predominant social organization is the small, isolated, and self-contained clan -- the family unit whose members claim descent from a common ancestor. The clan includes the relatives of the father and mother as well as the progeny of brothers and sisters. Normally, one clan occupies a village, although in some cases two or more clans may be grouped together in the same village. Functional groups that extend over wide areas, such as regional political federations, are scarce, particularly in the interior where small groups of people scatter in search of food and where people gather in large numbers only on festive occasions.

The clan, which is without rank or class, is usually governed by the elders, although authority is not vested in any one person. During times of war with neighboring tribes, however, one man may assume its leadership. Village chiefs are likely to be found only in coastal areas where relatively large village communities are more common; even here, the power of the chief is largely advisory and he has little means to enforce his desires. Where chiefs do rule the villages, heredity rarely plays a role in their selection. Rather, selection is based on qualifications such as wealth, ability in farming and leadership, prowess as a warrior, and success as a sorcerer. The Dutch attempted to establish widespread authority at the village level by inaugurating informal village

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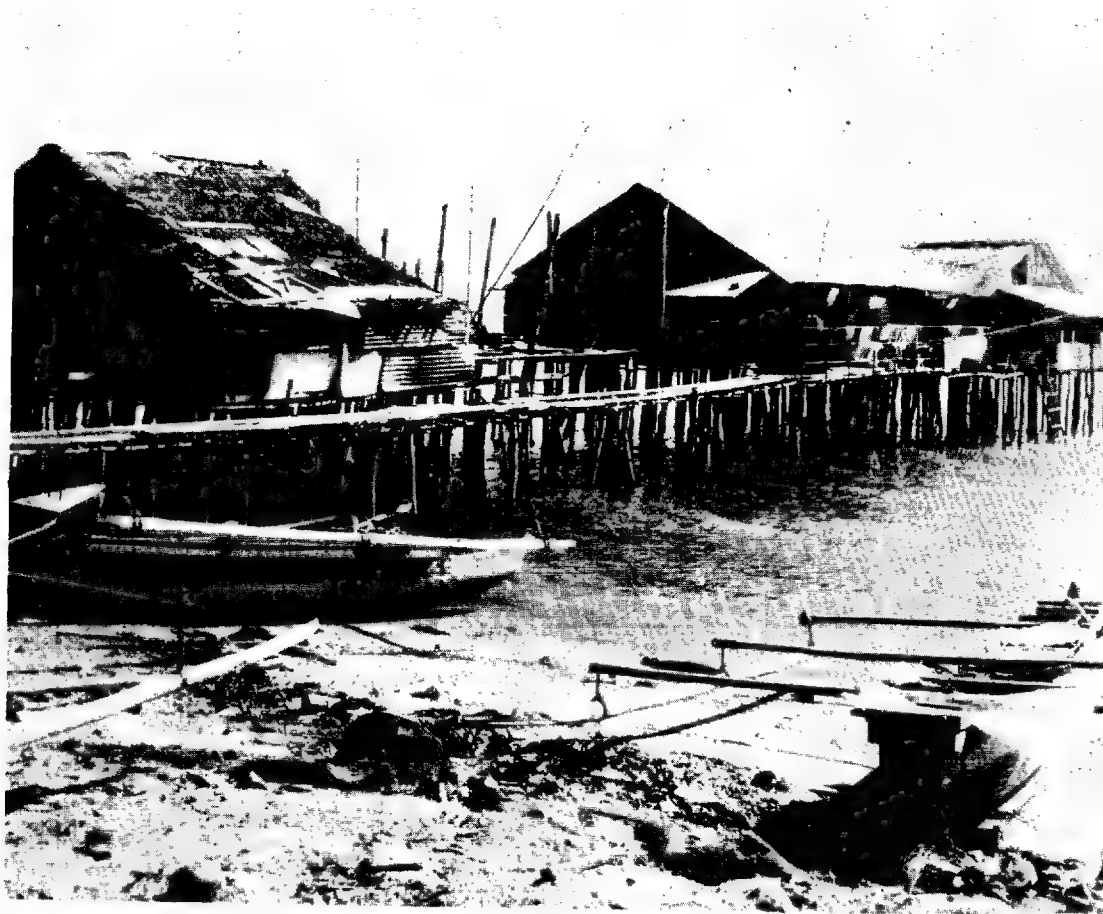


Figure 114. West New Guinea. Native housing along north coast near Sorong.

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Figure 115. West New Guinea. Village in southern lowlands. Houses are built on stilts for defensive purposes as well as to keep houses dry during high water.

S-E-C-R-E-T

S-E-C-R-E-T

councils, but they were seldom successful.

Polygamy is common in West New Guinea, and it is not unusual to find men, particularly chiefs, with two or more wives. Women, on the other hand, are sometimes slain if found guilty of adultery. The status of women is low. They are usually considered strictly as chattels, and their advice is rarely solicited when family decisions are made. Among some tribes, when a man dies his favorite wife is killed to "accompany" him. Among most tribes, the women are responsible for gathering the food and building the home; the men serve as warriors to defend the village. Daughters are considered valuable, for by selling them to prospective husbands a man can reimburse himself for all that he has spent on his wife. Because the girl is usually sold to the highest bidder, the older (and richer) men usually get the more desirable girls.

The basic cultures among the tribes of West New Guinea are similar, although the various cultural traits may be strikingly different. In general, cultural affinities are more common among the Negrito tribes of the highlands than among the peoples of the lowlands. Among the social practices common to most of the tribes of West New Guinea are male secret societies (into which boys, usually 8 to 10 years old, are initiated with great ceremony), elaborate (and usually very bloody) funeral ceremonies, pig feasts on special occasions (such as the arrival of guests), headhunting, and cannibalism. The last two practices, sometimes a part of religious ritual, have been largely suppressed during this century but still occur as isolated outbreaks.

In areas where white men have left and Indonesians have not yet made a show of strength, the natives reportedly have sometimes resumed their headhunting practices. Christian missionaries in the interior have been a strong force in suppressing headhunting and maintaining law and order; but since the Indonesian takeover, Westerners of all kinds, including missionaries, are denied reentry if they leave West New Guinea for business reasons or for home leave. Headhunting is most prevalent in the interior parts of the southern lowlands where the Papuans are probably the most hostile and warlike natives in West New Guinea. Headhunting and cannibalism are virtually unknown and intertribal warfare is less common among the Negritoes of the mountain areas.

A death in a village is usually an occasion for a big celebration with much dancing and shouting. The mourners are gaily adorned with paints and various ornaments, and during the funeral ceremonies they gather around the pyre

S-E-C-R-E-T

and chant and beat their heads and bodies with rocks before the corpse is burned. During the mourning period, many taboos affect the family of the deceased. For example, the widow can have no contact with men. As a token of mourning, women and girls sometimes cut off a finger joint; men and boys may cut off part of an ear. These body parts are then presented to the immediate families of the deceased, who may eat them. Among some tribes the corpse is not cremated but is wrapped in leaves and exposed to the elements on a platform built high in a tree; the bones are later disposed of. In some cases, the corpse has reportedly been eaten by the mourners; they believe that by doing so they acquire the attributes of the deceased. Among most tribes the supreme unpardonable insolence is to show disrespect for a corpse, particularly one of an enemy taken in battle.

Among the tribes of West New Guinea, pigs are believed to have magical qualities and they therefore occupy an exalted position, are treated with respect, and are killed with ceremony. They are often prized above a wife, and it is not unusual for a woman to wet-nurse piglets that have lost their mothers. The blood of the pig is believed to have healing powers and when smeared on the body is believed to protect the wearer from disease or other harm. A pig feast, which may last several weeks, is anticipated by the natives in much the same way that a Western child looks forward to Christmas. The feast often marks the end of the period of mourning for women who have lost their husbands and who can then remarry. After the pigs have been slaughtered but before the meat is cooked (by this time the meat may be quite "ripe"), weddings are held and boys are initiated into the secret societies. The feast is often culminated with ceremonies to drive the spirits into spirit land.

The fundamental principle of West New Guinea morals is the reciprocal code, or "payback", whereby the individual must pay back favors and seek vengeance for wrongs committed against him or his tribe. It is well for Westerners coming in contact with these people to remember this principle.

4. Religion

Although many (an estimated 200,000 to 300,000) of the natives of West New Guinea have been Christianized by missionaries, most of them, particularly those in the interior, are still animists and worship the world of spirits. Protestant missionaries have been active in West New Guinea since 1855, Catholics since 1905. Currently, about 300 missionaries are in West New Guinea, although their ranks are being depleted

S-E-C-R-E-T

S-E-C-R-E-T

by the government's policy against reentry. Only a few natives are ministers or priests. Most of the natives who have accepted Christianity have done so partly in their desire to emulate the white man. On the other hand, some have been reluctant to accept Christianity because Christian tenets allow only one wife, and by the standards of some tribes a man with only one wife is considered poor and is looked down upon. When natives have been converted to Christianity, they may rid themselves of the charms and fetishes of their former animistic religion, but they are likely to retain the convictions of their animistic beliefs. Thus Christianity, as practiced by most natives, is little more than a veneer. A few thousand Moslems live in the coastal areas; most are Indonesians.

The religious practices of the animists revolve around the world of spirits. Feasts are held to propitiate the good spirits and charms are worn to ward off the evil ones. Elaborate rituals are observed to control and manipulate the supernatural powers that are regarded as the cause of such things as disease, death, and bad harvests. In the event of a multiple birth, all but the firstborn are believed to be children of the devil and are killed. Often in the event of an epidemic in a village, some village member is believed to be possessed with the powers that have created the epidemic; a sorcerer is hired to find the person responsible for the malady, and presumably that person suffers dire consequences. Among some tribes, anyone who is ill is believed to be occupied by an evil spirit, and therefore a sick person must travel ceaselessly through the forest, sleeping each night in a different shelter; if he should remain in one place, that place would become filled with malevolence. Malevolent spirits are believed to be embodied in things such as animals, trees, mountains, rivers, lightning, and thunder. The natives attempt to placate these evil spirits in many ways -- by offering the blood of pigs, by planting certain types of trees in particular places and patterns, and by singing chants. Among the objects believed to be helpful in warding off evil spirits are stones, pig tails, desiccated organs of animals, strings of beads, and cowrie shells. Members of some tribes will not utter their own names lest they reveal their identities to the evil spirits and become targets for harm. Although most natives believe in a life after death and some believe in a Supreme Being, there is no agreement among the tribes as to the nature of God or the afterlife.

Because the acquisition of wealth and material goods is held in high esteem by the natives of West New Guinea, the affluence of the white man -- as observed by the natives among the Americans stationed in New Guinea during World War II as well as the Dutch colonial administrators -- was

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Figure 116. West New Guinea. Mountain village near Australian New Guinea border. Villages such as this may be abandoned and relocated every 4 or 5 years.

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S-E-C-R-E-T



Figure 117. West New Guinea. Aerial view of typical highland village. Note surrounding wall.



Figure 118. West New Guinea. Typical highland hut. Men live in one hut, women and children in another.

-186-

S-E-C-R-E-T

S-E-C-R-E-T

responsible for the appearance of cargo cults in widely separated parts of the island. These cults are based on the natives' belief that cargo -- material "goods" ranging from ships, aircraft, and military equipment to small trade articles -- is not manmade but instead comes from a divine source and that such coveted material wealth can be acquired by supernatural means. The natives believe that the cargo originated in the world of gods and spirits and that the white man has withheld it from the people of New Guinea, the rightful owners, by keeping for himself the religious secrets by which the cargo was originally obtained. The prophets of these cults continually try to find new ways to release the gods and spirits held in bondage by the white man so that they will send the goods to the people of New Guinea. Some natives have believed so strongly in the eventual elimination of all material inequities between themselves and the white man that they have burned their villages and belongings and have destroyed their gardens as proof of faith, believing that they would soon receive better things. Often when the deluded people found themselves starving as a result of the destruction of their gardens, they turned in desperation to deeds of violence.

The cargo cults have taken various forms. Some were submarine cults in which white men and their cargo were expected to return in submarines at some remote beach. In more recent years, helicopter cults have developed, their advocates maintaining that the village should build a high tower to facilitate the reception of cargo from the sky. Mass demonstrations accompanied by frenzied excitement often take place in an attempt to lure cargo ships or planes to a village. The suspicion that the white man knows magic spells that he keeps to himself, as a sorcerer would do, still lingers. Thus, the natives are skeptical when the white man tells them that no magic is involved in the possession of wealth and goods. Education has made some progress in eliminating these cults, but some still persist. (For an excellent detailed account of similar cargo cults in the Australian part of New Guinea, see Road Belong Cargo by Peter Lawrence.)

5. Language

A language barrier separates West New Guinea from the rest of Indonesia. Although the languages of the Melanesians are related to the Malayo-Polynesian linguistic family, they are not mutually intelligible with other languages of this family; and the languages of the Papuans and Negritos are unrelated to other languages of Indonesia. More than 100 distinct languages can be identified in West New Guinea, each with many dialects, and only a few are spoken by more

S-E-C-R-E-T

S-E-C-R-E-T

than a few thousand people. The largest numbers of people speaking any one language are found in the northern lowlands; in the interior of the island a language commonly is spoken by only a few dozen to a few hundred people, and a traveler may encounter a new language every few miles. Because the languages are mutually unintelligible, an interpreter from one group is of little value in regions where other languages are spoken. Sign language, however, has been highly developed, and a native can usually communicate effectively with his neighbors. The Negritoes of the mountains are reported to be especially ingenious in the use of signs and gestures, and communication with them is fairly easy.

The languages of the Papuans and Negritoes, although unrelated to the languages of the rest of Indonesia and of Oceania, bear a resemblance to those of the aborigines of northern Australia. All these languages are characterized by an unusually complicated grammatical structure and great variety in vocabulary, but they cannot express abstract ideas such as love or hate. The languages of the Melanesians, although related to the Malayo-Polynesian tongues, have been strongly infused with words from the Papuan languages. None of the indigenous languages of West New Guinea possesses its own script, although a few -- notably that of the Danis of the Baliem Valley -- have been reduced to writing in roman script. Dictionaries have been compiled for many of the languages. Many of the coastal natives know Bahasa Indonesia, and, reportedly, the government is doing much to spread its use in West New Guinea. Pidgin English, which is commonly spoken in the Australian part of New Guinea, is not encountered in West New Guinea; the border between Australian and Indonesian territory reportedly can be ascertained by observing whether the natives speak Pidgin English or not.

6. Education

Educational facilities are poorly developed in West New Guinea; as a result, the vast majority of the indigenous people are not literate in any language. In 1962, an estimated 60,000 children in West New Guinea attended school, most of them at the primary level. They were in several hundred mission schools, most of which were heavily subsidized by the Dutch and many of which are probably no longer operating, since all missionary teachers were eventually to be replaced by Indonesian and native teachers after the Indonesian takeover. Only in the urban areas is it possible to achieve a secondary or vocational education, and few natives have received a higher education, although 35 Papuans were reportedly studying in Holland in 1962. A university was established in Sukarnapura

S-E-C-R-E-T

S-E-C-R-E-T

in 1963. It had 160 students in 1964, but only 27 of them were West New Guinea natives, the rest being Indonesian civil servants. Several hundred West New Guinea natives are now studying on Java.

7. Occupations

All but a handful of the indigenous inhabitants of West New Guinea are outside the monetized sector of the economy. They lead a hand-to-mouth existence. In 1958, only about 16,000 natives were employed as wage earners in the modern sector of the economy -- most of them in carpentry, mining, clerical work, police work, and work in the oilfields. (Petroleum production in West New Guinea has been severely curtailed since the Indonesian takeover, however, and as of mid-1965 only the Klamono field was producing and output there was meager.) Because the material needs of the natives are few, they have little incentive for regular work; they therefore are indifferent to steady employment and will stop work as soon as they have enough money to satisfy a given need.

Sago forms the dietary staple of most of the natives in the lowland areas, although rice (mostly imported) has been introduced and is being increasingly used as the staple food in urban areas. Other than rice, cereal foodstuffs are virtually unknown. The sago palm is sometimes cultivated, but more commonly the people collect the pith from wild trees. The variety of crops grown in the hills and mountains of West New Guinea is greater than in the lowlands. Sweet potatoes form the principal staple of the diet in the highlands and are supplemented by such crops as sugarcane, bananas, taro, and cassava. All these crops are cultivated in small garden plots surrounding the native settlements.

Nuts, fruits, and berries that grow in the forests of West New Guinea are collected by the natives and provide a supplement to their diet. Many of the natives suffer from malnutrition because of their protein-deficient diet, and the protruding abdomen that may result from malnutrition (or from a malarially bloated spleen) is a common sight. Pigs are raised throughout the area, but among most tribes they are eaten only during festive occasions; pork is not a regular part of the diet. Hunting, principally with the bow and arrow but sometimes with the spear or with nets or traps, provides variety to the diet in lowland areas; animals are scarce in the highlands. The principal animals hunted include the wild pig, deer, wallaby, phalanger, possum, and sloth; the cassowary and other birds also are hunted. The kangaroo,

S-E-C-R-E-T

S-E-C-R-E-T



Figure 119. West New Guinea.
Native of Southern Lowlands.
His nose and ears have been
pierced to accommodate adorn-
ments.

S-E-C-R-E-T

S-E-C-R-E-T



Figures 120 & 121. West New Guinea. Mountain natives near Australian New Guinea border. Note influences of civilization -- shirt, shorts, long-visored cap, and axe with steel blade.

S-E-C-R-E-T

S-E-C-R-E-T

which is found in some areas, is not hunted by many tribes as it has totemic significance. Crocodiles, turtles, and fish supplement the diet of natives living in coastal regions but are not usually found in the lakes or rivers of the highlands, and dried fish brought into the highlands by outsiders are therefore highly valued. Freshwater shrimp and crayfish are found in some mountain lakes and are netted by the natives. Insects, grubs, and larvae, common in such trees as the sago palm, are eaten, usually without cooking. Other food is cooked by wrapping it in leaves and roasting over hot rocks placed in a pit. Tobacco is grown and is smoked by wrapping it in a pandanus leaf or placing it in a pipe made from materials such as acorn shells, reed, or bamboo. The natives drink no intoxicants, but they do chew a leaf that induces drunkenness.

Agricultural practices are poorly developed throughout the area. Soils are poor and deteriorate rapidly under use; agriculture is therefore usually of a shifting type. More permanent agricultural systems are found only in areas of the Central Highlands such as the Baliem Valley, where fields are fenced, irrigation has been developed, crop rotation is practiced, and green fertilizers are used. Men generally do the heavy work of clearing the garden plots, but women do the planting, weeding, and most other work in the gardens, as well as fishing, collecting sago and other jungle plants, and doing the household chores. Both sexes harvest the crop.

Freed from many of the food-gathering chores, the men sometimes travel great distances to trade. Some highland peoples -- the Danis of the Baliem Valley in particular -- have developed reputations as outstanding traders. Certain tribes develop skills in making particular objects, such as stone axes or fishtraps. They then trade such objects to other tribes that make things that they desire. All sorts of items as well as wives can also be purchased, most commonly with cowrie shells as the medium of exchange but sometimes with cloth or salt. Each cowrie shell is individually appraised and valued according to its quality. For outsiders traveling in West New Guinea, barter items not available locally and thus highly valued are extremely useful. These items include steel axes, knives, beads, tin cans, jars, bottles, cloth, cigarettes, and sugar; salt is valued by some tribes but not by others. In coastal areas the Indonesian rupiah has been introduced as a medium of exchange.

S-E-C-R-E-T

8. Villages and Housing

Villages in close proximity to the few urban areas of West New Guinea are well laid out, with relatively well-constructed houses. Villages throughout the rest of the region are small, scattered, very isolated, contain crudely built dwellings, and are usually abandoned every few years as the local soil fertility and food supply are depleted. More than 50 percent of the villages have populations of less than 100. Villages with populations of more than 500 are rare. The number of dwellings in each village ranges from 5 to 25 in the interior, somewhat higher in the coastal regions. The pattern of the villages varies from chaotic clusters of huts in the mountains to a U-shaped arrangement of houses in the Baliem Valley and long rows of dwellings along the coasts and lower stretches of rivers in the lowlands. A lookout hut, built higher than the surrounding dwellings and containing an armory of bows and arrows, is often situated in the center of the village. Coastal villages sometimes are built in a grove of palms on the beach but may also be built on piles out over the sea, with access by a boardwalk or canoe. In the hills and mountains, villages are usually situated in forest clearings on hillsides or atop ridges some distance from river highways and marauding cannibals from neighboring villages. In the highlands wooden fences, earthen palisades, or walls of stone surround many of the settlements, keeping the pigs and children in and the enemy out. These settlements are usually situated in a patchwork of cultivated fields, and from the air, the landscape is not unlike that of the farm country of much of the eastern United States.

House types vary considerably from one area to another; they are built with the material most readily available -- wood, bamboo, palm leaves, or grass. In the lowland areas and in the western mountainous areas houses are rectangular in plan, are built on the ground, and are constructed with frames of wood and vine and walls and roofs of palm leaves; they normally house one family. In parts of the swampy southern lowlands, the people sometimes live in crude wooden huts built high in the trees for purposes of defense and observation. In the central and eastern mountain regions, dwellings are usually built on the ground and are shaped like a round or oval beehive about 15 feet across. They commonly have two stories -- the lower one with a vertical dimension of only about 4-1/2 feet and the upper one even less. Construction consists of a framework of wood and vines covered with grass thatch. A small door admits the only light. At higher elevations, a fire (primarily for warmth, as most cooking is done outdoors) burns continuously in the center of the lower floor. The men and older boys live together; the women, girls, young boys,

-193-

S-E-C-R-E-T

S-E-C-R-E-T

and pigs are allotted separate housing. Furniture is rarely found in native houses; the natives sleep on the floor, sometimes with the skull of an ancestor or an enemy as a pillow.

9. Dress

Except for those living in the urban areas and their immediate hinterlands who have adopted Western-style dress, most natives of West New Guinea -- even those in the cool mountain regions -- wear a minimum of clothing. Complete nakedness is common. The nakedness of the peoples of the interior tends to shock the rather prudish Indonesians, and reportedly, after they took over West New Guinea in 1963 the Indonesian administrators tried to interest the "poor naked Irianese" in clothing; their suggestions probably went unheeded. To most Papuans and Negritos clothing is more for the purpose of adornment than for protection or concealment. When any clothing at all is worn it is simple -- a loincloth of bark is the common attire for men of the lowland regions; a long yellow gourd that shields the penis and is held in place by a string attached to a belt of rattan around the waist is the "dress" for men of the mountains; a short skirt of grass, leaves, or fiber or an apron of bark cloth is worn by the women throughout West New Guinea. Adornments in a wide variety are popular, and in general, the men wear more adornments than the women. Among the most common are nose plugs made from boar tusks, pieces of bone, wood, shell, or other materials that are inserted through a hole pierced in the nasal septum. Members of many tribes pierce their earlobes and decorate them with various objects such as twine, beads, or boar tusks. Armlets, bracelets, and necklaces of bark, rattan, feathers, fur, shell, beads or teeth are sometimes worn, as are belts and chest straps of rattan or other materials. Most of the time, natives in the lowlands wear nothing over the head, although various objects such as beads, dead bugs, long plaits of fiber, or bits of palm leaf may be attached at the end of tightly wound braids. On ceremonial occasions, colorful headdresses of cassowary feathers or bird-of-paradise plumes are worn by the men. In the highlands, some natives wear a sort of hairnet made of grass or fiber. Most of the Negrito men in the mountains have an elongated net bag that is slung over the shoulder to carry personal possessions such as knives, fishing equipment, and fire sticks.

Scarification and tattooing of the face and body is a common practice among many of the tribes, particularly among the women. Body painting with soot and pig grease and the decoration of faces with elaborate designs of charcoal and

S-E-C-R-E-T



Figure 122. West New Guinea. Dani men and children of Baliem Valley.



Figure 123. West New Guinea. Mountain men wearing penis shields and various kinds of ornaments.

S-E-C-R-E-T

S-E-C-R-E-T

red and white clay are practiced during festive occasions.

10. Health and Medical Factors

The natives of West New Guinea, particularly those in the southern lowlands, are not a healthy lot; they suffer from a variety of maladies. Abdomens are swollen from malaria and malnutrition, flesh has been eaten away and bones distorted by yaws, and bodies are emaciated from leprosy and other skin diseases. The people have a low resistance to infectious disease because their hygienic habits are poor and their diet inadequate. Life expectancy is low, averaging under 30 years; rarely does one find a native over 45. Infant mortality is high, and in the swampy southern lowlands 80 percent of the children die before they reach their sixth birthday. The chief cause of death is malaria, but other diseases such as pneumonia and tuberculosis also contribute to the high death rate. Southern West New Guinea has one of the highest malaria incidence rates in the world, although the mountainous areas are relatively free of the disease.

The introduction of modern medicines such as penicillin by WHO and UNICEF in the past 10 years has done much to reduce the incidence of yaws; in the more densely populated northern coastal areas and offshore islands the disease has been nearly eliminated. Considerable progress has also been made by WHO and UNICEF against malaria, filariasis, leprosy, and tuberculosis. (When Indonesia withdrew from the United Nations in 1965, medical assistance by UNICEF was discontinued; WHO operations, however, were continued.) Although the natives usually blame physical ailments on supernatural causes, most of those who have had contact with outsiders realize the effectiveness of modern medicines in combatting disease. Penicillin, antimalaria pills, and the like are a significant asset to a traveler in West New Guinea in gaining the confidence of the local people.

In 1961, 21 hospitals run by the government, one hospital run by the Protestant Mission, and a number of outpatient clinics had a total of about 1,200 beds. Major hospitals are located at Babo, Biak, Fakfak, Kaimana, Manokwari, Merauke, Seroei, Sorong, Steenkool, and Sukarnapura.

S-E-C-R-E-T

S-E-C-R-E-T

11. Attitudes and Loyalties

To the average native of West New Guinea, the world is a very small place, confined to the limited geographic area with which he is familiar. He is likely, for example, to believe it to be bordered by mountain ranges or, in the case of coastal natives, partly by the sea.

The attitudes of the West New Guinea natives toward outsiders are likely to vary considerably from tribe to tribe depending on the nature of the past relationships between the particular tribe and outsiders. In the northern lowlands, particularly in urban areas, native attitudes toward outsiders are becoming more friendly as the population comes increasingly in contact with the outside world. Natives living in the more remote areas of the southern lowlands and in the isolated regions of the mountains, however, remain outwardly savage and extremely suspicious of outsiders, be they white or simply natives from a neighboring valley. The Negratoes of the highlands, although also suspicious, generally are reported to be friendlier and calmer than the more excitable and ill-tempered Papuans.

Native etiquette forbids the approach to a village, where the women may be hiding, without some kind of warning. If a stranger approaches too close, the natives may be hostile. Once the stranger proves not to have unfriendly intent, however, the suspicious natives will usually be quite hospitable. Their "peaceful welcome" -- which may consist of an eerie combination of weeping, wailing, and shouting -- may be frightening to an outsider, even though their seemingly bellicose actions often bely great good nature beneath. The suspicion of the natives is likely to be directly proportional to the size of a party of strangers; they are likely to disappear into the bush on the approach of large numbers. Whenever they have their women with them, it is safe to assume that they have no hostile intentions. A characteristic common to most West New Guinea natives is that they are unpredictable and quick to react, and a state of apparent peacefulness may change into a state of turmoil and strife in a matter of moments. Similarly, however, their violent anger is likely to be dissipated in a short time.

Although many natives in the remote interior sections of West New Guinea have never seen a white man, those who have had contact with white men generally admire them and like to emulate them; as a result, these natives are easily susceptible to the influence of most white foreigners. This admiration is probably based not so much on a genuine liking

S-E-C-R-E-T

S-E-C-R-E-T



Figure 124. West New Guinea. Man with stone axe.

-198-

S-E-C-R-E-T

S-E-C-R-E-T

for the white man but rather on respect for his power (including "magical" ability to operate gadgets such as radios and flashlights) and his material possessions. After the departure of the Allied troops and their machines and weaponry from West New Guinea after World War II, many natives, particularly members of the cargo cults, blamed the Dutch colonial regime for the loss of military supplies that the natives believed rightly belonged to them. Admiration for the American soldiers encountered during World War II was so great that many natives wished to become the property of the United States. American Negroes were particularly popular but were not respected as much as the whites since a dark skin is not as awesome to the natives as a white skin. Partly for this reason, the Indonesian administrators do not command as much respect as did the Dutch. Indonesian officials are reported to be resentful of the white missionaries who have established more friendly rapport with the natives. Much of the success of the white man in West New Guinea can be attributed to the introduction of medicines, the benefits of which the natives have been quick to realize.

It is likely that some members of the West New Guinea "elite" initially welcomed the end of Dutch sovereignty and the takeover by Indonesia in 1963, although the vast majority of the natives were politically indifferent to the Indonesian takeover and probably were ignorant of its implications. Since the change of sovereignty, however, pro-Indonesia feelings have reportedly diminished and hostility toward the central government has increased. During the early months of the Indonesian takeover, for example, there were incidents of stone throwing and other abuses directed at the Indonesian troops. Near insurrections were reported to have occurred in Manokwari in July 1964 and in early August 1965. The latter incident reportedly resulted in heavy casualties on both sides and lasted for about a week before being quelled by Indonesian troops. Since June 1965, clashes between natives and central government forces on Biak, in Sukarnapura, and in the Wamena Valley of the Central Highlands have been reported in addition to the incidents in Manokwari.

Reasons for the serious deterioration in the relations between the natives and the Indonesian administrators are many. Indonesian administration of the territory has been ineffective in its distribution of food and supplies, thus creating discontent among those natives affected. In addition, the Indonesians do not patrol interior regions as effectively as did the Dutch. Without a show of strength by the government the natives tend to lose respect for the administration and revert to intertribal warfare and cannibalism. Furthermore,

S-E-C-R-E-T

S-E-C-R-E-T



Figure 125. West New Guinea. Papuan man wearing ballpoint pen as nose decoration.

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S-E-C-R-E-T

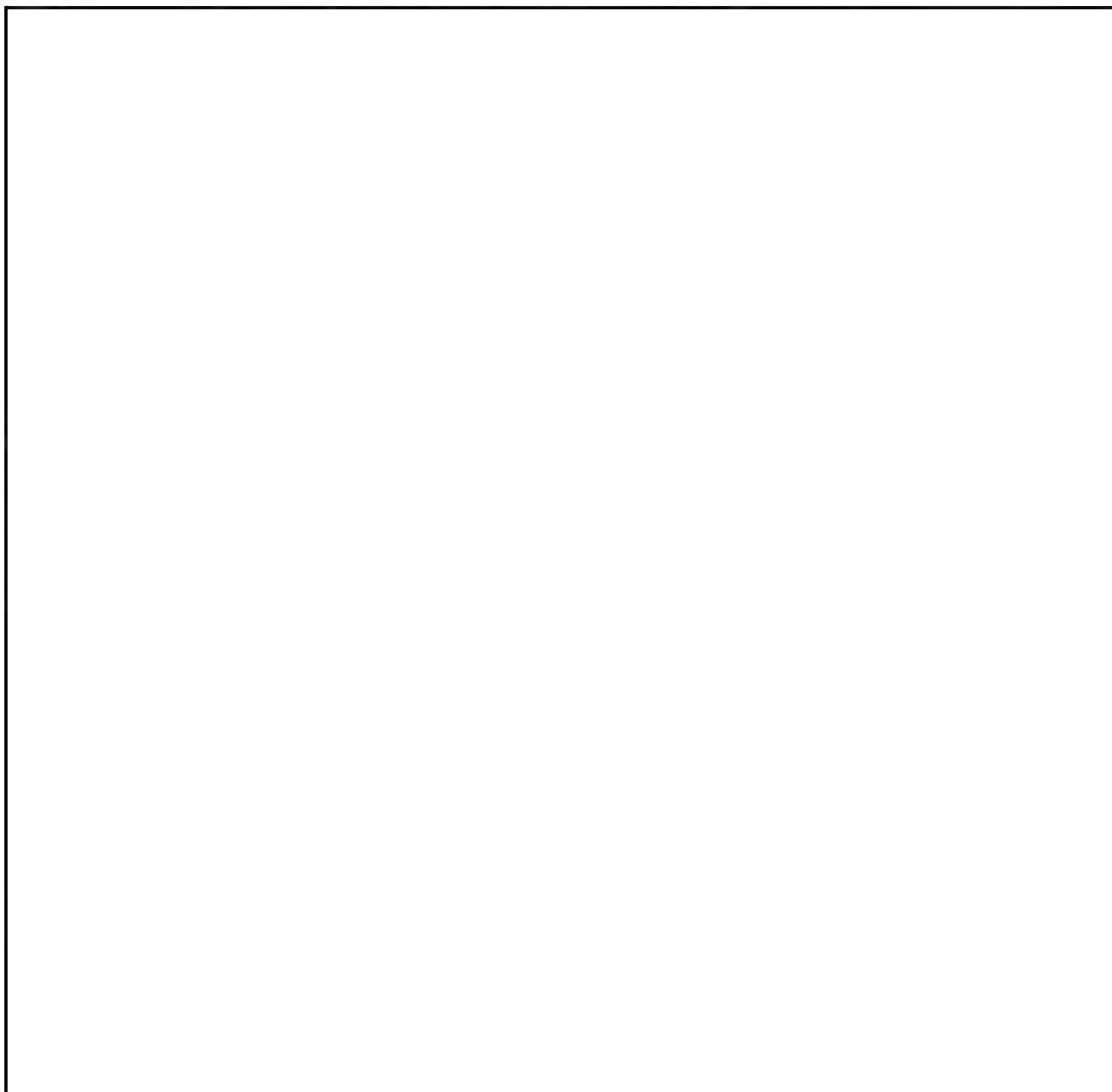
many of the administrators are apparently prejudicial and contemptuous toward the natives, who resent any hint of patronization. In urban areas such as Sukarnapura, the natives are resentful of the Indonesians who have settled there and who have contributed to the problem of unemployment among qualified natives; they fear that further immigration will aggravate the situation. Finally, discontent among the more worldly natives was heightened and separatist sentiment intensified by the Indonesian withdrawal from the United Nations in 1965 and by the expectation that the Indonesian commitment for a UN-supervised plebiscite in 1969 probably would not be fulfilled. In spite of the many grievances, the natives have little capacity for organized resistance, because the tribes are compartmented into isolated regions with virtually no communications.

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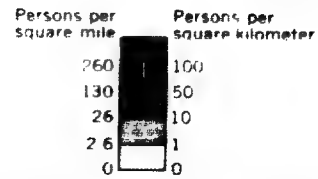
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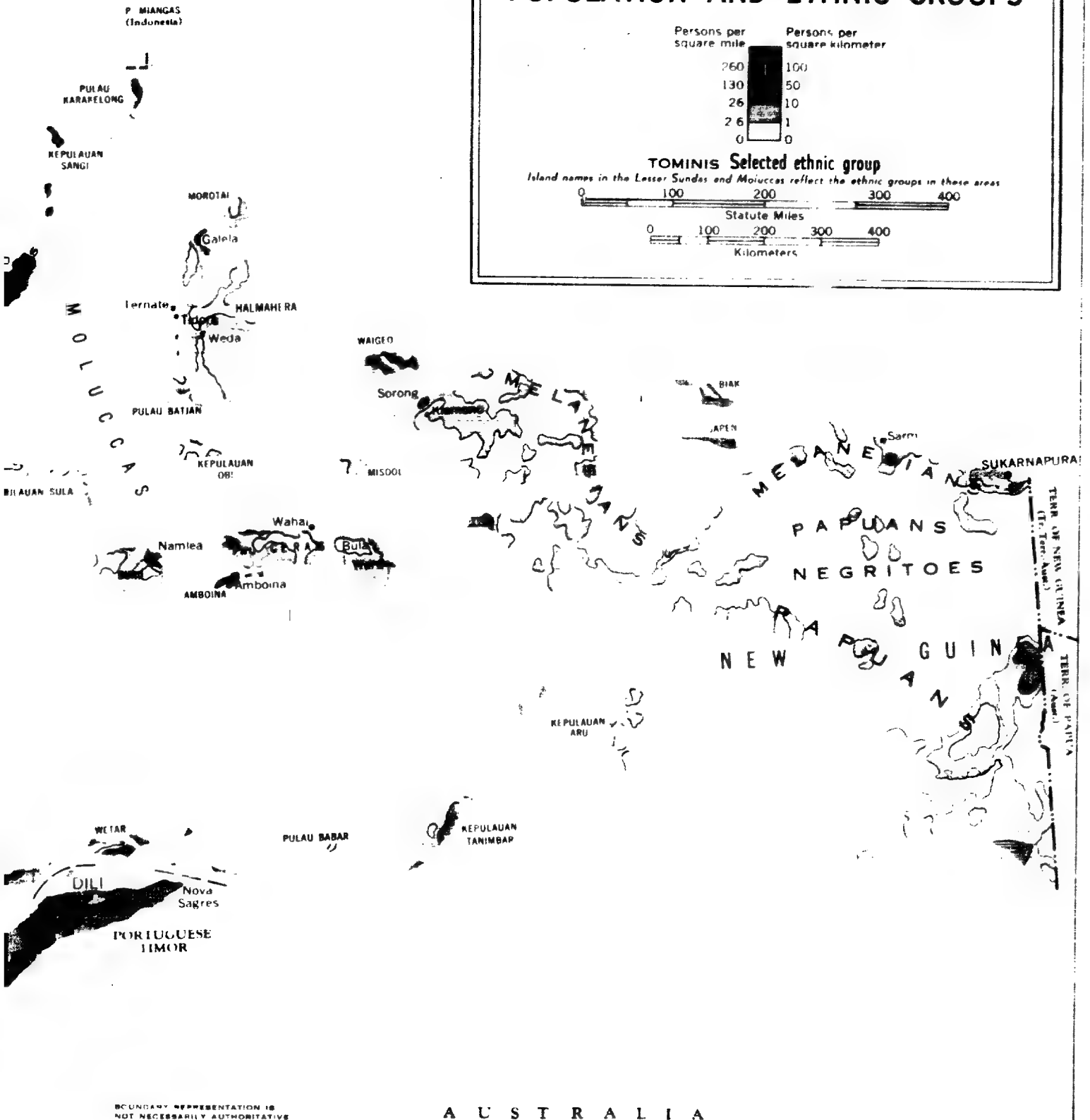
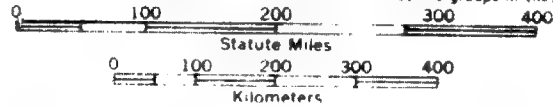
INES

EASTERN INDONESIA POPULATION AND ETHNIC GROUPS



TOMINIS Selected ethnic group

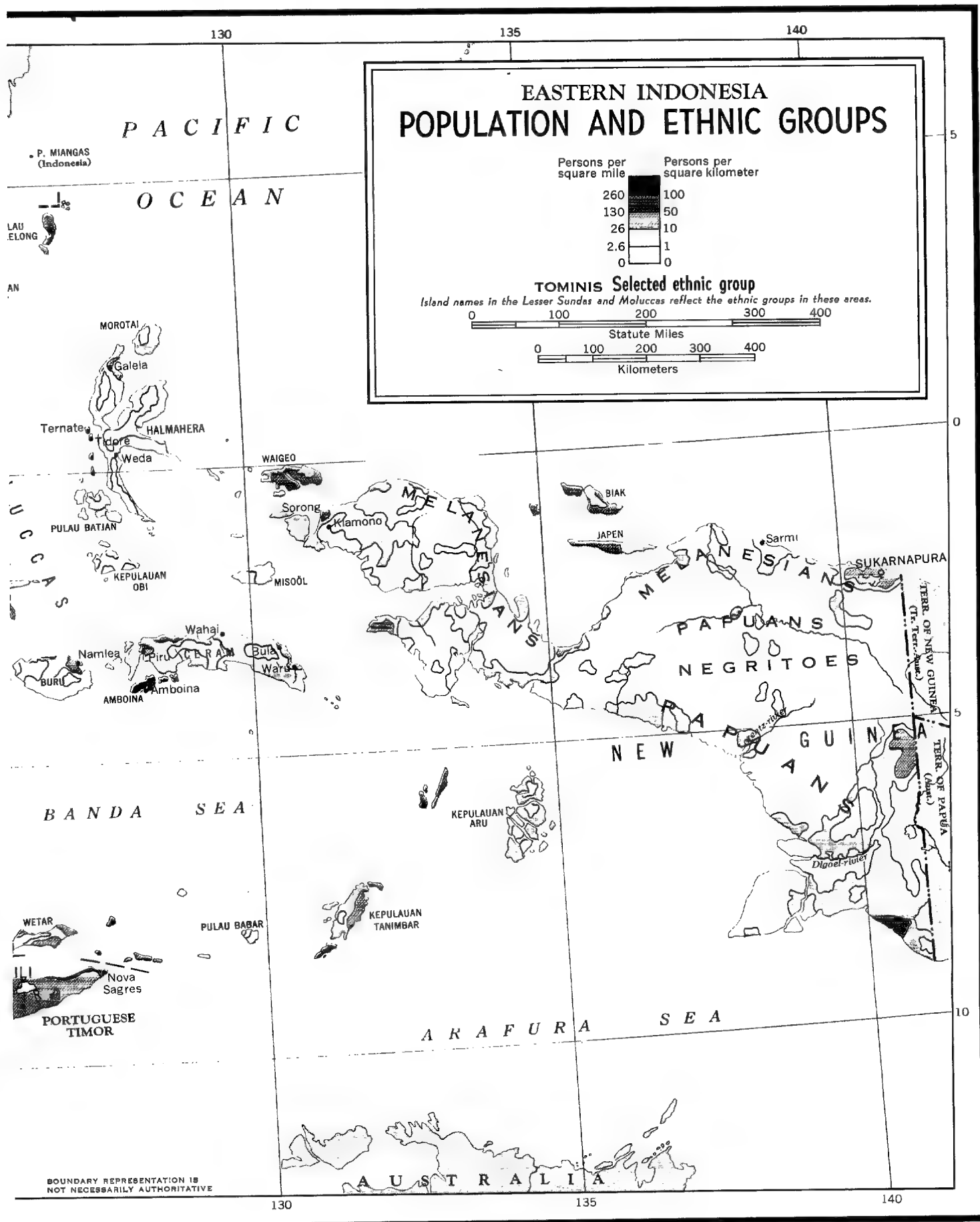
Island names in the Lesser Sunda and Moluccas reflect the ethnic groups in these areas



BOUNDARY REPRESENTATION IS NOT NECESSARILY AUTHORITATIVE

A U S T R A L I A





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V. Politics and Government

A. Current Problems

Since March 1966 Indonesia's new regime, which is based on an army-civilian coalition, has been absorbed in legitimating its rule, in preventing new outbreaks of civil disorder, and in recasting Indonesia's domestic and foreign policies. Aware of the entrenched position of pro-Sukarno sentiment in the population centers of east and central Java, the regime has chosen to erode Sukarno's personal influence rather than risk civil war by moving directly against him. The goal of the ruling triumvirate -- headed by the Indonesian army's General Suharto -- to restrict Sukarno to a figurehead role was bolstered by the Indonesian Congress in June 1966. The congress revoked Sukarno's life-time presidency but provided that he remain in office until an elected congress chooses a president, reaffirmed Suharto's earlier ban on the Indonesian Communist Party and decreed that elections be held within two years.

With their political role considerably strengthened through this congressional action, the regime's most urgent problem is how to get the bankrupt economy back on a sound basis. The policies of the Sukarno era left a legacy of declining production, soaring inflation, complete lack of foreign exchange reserves, and a foreign debt far beyond Indonesia's ability to repay. Even Indonesia's subsistence economy, which engages 75 percent to 80 percent of the population, steadily declined under Sukarno because of government mismanagement. Indonesian industries are operating at less than 30 percent capacity and are able to secure spare parts and raw materials only infrequently. The nation needs widespread restoration of roads and railroads to carry rice into the cities, move export commodities to seaports, and supply villages with consumer goods. Almost 55 percent of all Indonesia's motor vehicles have broken down because of the lack of spare parts. Less than 40 percent of Indonesia's merchant fleet is available for commercial use, the remainder being laid up due to lack of spare parts, inefficient repair facilities, and a shortage of trained personnel; or commandeered by the military to support security operations. Many roads have reverted to the jungle.

S-E-C-R-E-T

S-E-C-R-E-T

A basic problem of the Indonesian economy is the lack of managers, skilled labor, and entrepreneurial talent. The Dutch provided little training for the Indonesians, and the Indonesians have aggravated the shortage by ousting foreigners with managerial and technical skills. Repressive actions against the local Chinese since the 1 October coup have further reduced the ranks of traders and entrepreneurs.

The new regime has formulated an economic plan by which it hopes to take the first steps toward stabilizing the economy and to persuade creditor nations to reschedule debt repayments. It also hopes to obtain direct economic assistance and has applied for readmission to the International Monetary Fund and the World Bank. Indonesia's new rulers are uncomfortably aware, however, that some of the necessary stabilization steps envisaged, such as increasing tax collections and reducing subsidies to state enterprises, can be exploited by undisciplined political parties which are eager to expand their following in anticipation of 1968 elections.

Eastern Indonesia has suffered a noticeable economic decline since World War II, although living standards probably remain higher than those on overcrowded Java. Resentment over restrictive marketing regulations by the central government has been long-standing and has deepened a tendency to evade government payment by smuggling. The area lacks adequate interisland shipping, and during the 1963-65 rupture of relations with Malaysia it lost important foreign markets. Sporadic dissident activity has fed since 1950 on these regional economic grievances as well as on the personal appeal of anti-Javanese leaders. General economic debility will probably prevent the central government from effectively coping with the problems of West Irian where discontent is already evident.

B. Structure of Government

The islands of Eastern Indonesia are divided into 9 provinces (see Map 51160). Their names and capitals are: Bali (Denpasar); Nusa Tenggara Barat - Western Lesser Sundas (Mataram); Nusa Tenggara Timur - Eastern Lesser Sundas (Kupang); Sulawesi Utara - North Celebes (Manado); Sulawesi Tengah - Central Celebes (Palu); Sulawesi Tenggara - Southeast Celebes (Kendari); Sulawesi Selatan - South Celebes (Makasar); Maluku - Moluccas (Amboina); Irian Barat - West Irian, formerly West New Guinea (Sukarnapura, formerly Hollandia).

S-E-C-R-E-T

Provinces, called first-level regions (Daerah I), are divided into regencies (kabupaten), which together with the principal cities are called second-level regions (Daerah II). In West Irian, an older Dutch-instituted system of residencies is still in effect as the second-level administrative regions.

Each provincial government has been headed since September 1964 by an "executive authority", more commonly known by the acronym Pepelrada, who has expanded civil powers under emergency conditions. These conditions are not clearly defined and since October 1965 they have been liberally interpreted by the local army commanders of military regions (KODAM's) to grant them powers verging on martial law. West Irian affairs are somewhat different in that its policy is controlled by the Home Affairs Ministry and there is no Pepelrada appointed. In 6 of the other 8 provinces, KODAM commanders act as Pepelradas: in both Nusa Tenggara Barat and Nusa Tenggara Timur, police commanders hold this post. The Pepelradas appear to report directly to the Cabinet Presidium, whose chairman is First Minister for Defense and Security and Commander of the Army General Suharto.

The Pepelrada heads up a four-man administrative team in each province known as the Tjatur Tunggal (Four-in-One Command), consisting of the governor, the highest military commander in the area (of the army, navy, or air force), the provincial police chief, and the provincial representative of the attorney general. The Tjatur Tunggal is normally the executive branch of provincial government but has now been pushed to the background by the expanded powers of the individual Pepelradas.

The provincial governors and heads of regencies and cities are appointed by the central government and are responsible to the Minister of Home Affairs. They also serve as chiefs of the central government's civil service in the provinces. Provincial legislative councils (called the Regional Councils of People's Representatives) are appointed by the governors upon the nomination of the regents. All legislative councils are made up 50-50 of representatives of political parties and functional groups (the latter are drawn from all major occupation categories as well as women, youth, and students). Small (normally 3- to 5-man) Daily Executive Boards are appointed by the governors and regents to perform the main administrative tasks. The planned governmental structure for third-level regions (districts and subdistricts), or Daerah III, has not been fully implemented. The heads of the districts and subdistricts

S-E-C-R-E-T

S-E-C-R-E-T

are appointed by and are responsible to the Ministry of Home Affairs and essentially are links to the central government rather than to the provincial government. Third-level executive and legislative bodies, when created, will probably consist of subdistrict officials appointed by the province or perhaps regency heads and would tie the local government more directly into the regional structure.

Government below the subdistrict level is in a sense self-government. Only in the village and its subunits are officials now chosen by local residents. The village, moreover, differs from other political units in that its people are more closely bound by social and religious ties. Government services tend to stop at the subdistrict level, as the head of the subdistrict who represents the central government, and the village head, who represents traditional ruling authorities, find it difficult to establish relations with each other which fulfill the status requirements of each. The villagers tend to resist outside interference in village affairs, and government programs have had to move slowly.

The judicial system consists of a Supreme Court in Djakarta; four superior courts, one of which is located in Eastern Indonesia at Makasar; and state courts, which are divided into first- and second-level courts. There is also a first-level state court at Makasar. Theoretically, second-level state courts are located in each regency or equivalent administrative area. The Indonesian court system also includes several types of special courts. Some, such as the juvenile and traffic courts, represent the country's efforts to emulate where applicable the practices of more advanced countries. Others of more recent creation reflect the pro-Communist influences widespread within the government prior to 1 October 1965, and may be gradually abandoned. The latter include special courts to hear cases of subversion, both economic and political, and a system of land reform courts (consisting of a central court in Djakarta and state courts) to try violators of the land reform law. Members of Communist front organizations were barred as judges of the land reform courts in early November 1965, thus removing the system's major advocates. Throughout Indonesia, village officials also dispense justice according to local customs.

C. Current Administration

The Indonesian cabinet installed on 28 July 1966 strengthened the army's position within the government. Army commander General Suharto heads the cabinet as chairman of a 5-man cabinet presidium, and also retains the defense

S-E-C-R-E-T

S-E-C-R-E-T

portfolio. The five "first ministers" who make up the presidium include the triumverate that directed the preceding cabinet -- Suharto, Adam Malik, and the Sultan of Djog-jakarta -- with key ministries placed under their supervision. The other two presidium members are representatives of Indonesia's two major parties: The Nationalist Party (PNI) and the Muslim Scholars (NU). Three minor parties are also included in the cabinet: the Catholic Party, the Christian Party (Parkindo), and the army-supported Association of Supporters for Indonesian Independence (IPKI). However, 12 of the 27 cabinet ministers are military officers and several ministers appear to be technicians, rather than political selections.

Although the hand of the new regime has been strengthened at the national level, the attitude of the provincial Pepelradas (all of whom are military men in Eastern Indonesia) in carrying out central government directives is greatly affected by local political factors. The army has the power to enforce government policy, but does not want to make itself politically unpopular by doing so. The eastern areas have long accused Sukarno of pursuing pro-Communist and economically ruinous programs, and have generally applauded the new directions in Indonesian policies in which the army has taken the leading role. Civil-military relationships, however, are burdened by the long history of dissidence in the area, residual anti-Javanese feelings, and lack of confidence that Indonesia's new rulers will be able to cope effectively with economic problems.

The military and police commanders acting as Pepelradas in Eastern Indonesia are as follows:

North and Central Celebes: Brig Gen Sudarmo
(CO XIII Military Area) (See Chapter IX,
Section B)

South and Southeast Celebes: Brig Gen Solichin
(CO XIV Military Area)

Bali: Col Sukartijo (CO XVI Military Area)

Eastern Lesser Sundas: Oesterreich (police commander)

Western Lesser Sundas: Col Surarso (police commander)

Moluccas: Brig Gen R. A. Djauhari (CO XV Military
Area)

S-E-C-R-E-T

S-E-C-R-E-T

The names of the governors of Eastern Indonesian provinces are:

North Celebes: Presently vacant (Abdullah Amu, acting)

Central Celebes: Anwar Dato Madju Basa Nan Kuning

South Celebes: Brig Gen Andi Achmad Rifai

Southeast Celebes: J. Wajong

Bali: Merta

Eastern Lesser Sundas: W. J. Laimentik

Western Lesser Sundas: Ruslan Tjakraningrat

Moluccas: Latamahena

West Irian: Frans Kasiepo

Only fragmentary information is available on the political orientation of these officials. In some instances, the military commanders were appointed in 1966 and were selected by the army to replace pro-Communist (in Bali) and ineffective (in North Celebes) military men. The pro-Communist governor of Bali was removed in late 1965, but the present incumbent, Merta, is strongly pro-leftist and has opposed army-sponsored student activities there. Brig Gen Solichin in South Celebes is a forceful and determined commander and an expert on counterinsurgency. As Chief of Staff of the army's antidissident campaigns there, Solichin has traveled throughout the province and appears to be well-known, respected, and perhaps a bit feared. He is an ethnic outsider, however, as a Sundanese from west Java. Governor Laimentik of the Eastern Lesser Sundas is an extremely able executive. He was born in north Celebes, is a graduate of Wayne University (Indiana), and is outspokenly pro-Western. Governor (former colonel) Latamahena of the Moluccas impresses observers as being favorably oriented toward the US. Governor Kasiepo of West Irian has no real influence on local administration, most matters being handled by the Ministry for Home Affairs in Djakarta. Brig Gen Bintoro (CO XVII Military Area) was assigned to West Irian in 1966.

D. Foreign Relations

Indonesia's shift in foreign policy during 1965-66 from a pro-Peking orientation to nonalignment resulted from

S-E-C-R-E-T

the dramatic reversal in fortune suffered by President Sukarno and the Indonesian Communist Party (PKI) after the leftist coup attempt of October 1965. Relations with Communist China were severely strained by Indonesian army convictions that Peking had encouraged and sent small arms to the coup forces, and by stiff protest notes from Peking over the damages suffered by the Indonesian Chinese community in the wake of anti-Communist purges. Embassy staffs in both countries have been sharply reduced, but diplomatic relations have not been broken. Indonesian relations with the Soviet Union, however, remained firm, partly because the PKI had become almost totally Peking-oriented and its purge by the army was only mildly protested by Soviet representatives, and partly because Moscow's provision of military supplies since 1960 represented a considerable investment for both the Soviet Union and Indonesia. After October 1965, the Soviet Union embarked on a wait-and-see policy. There was little activity in existing programs during 1966, and Moscow was unwilling to initiate new assistance programs. Indonesia also abandoned Sukarno's policy of estrangement from the UN and the Western nations. By the end of September 1966, Indonesia had again entered the United Nations and was counting heavily on western assistance in coping with formidable economic problems.

Indonesia's relations with neighboring Malaysia have also improved with the signing of an accord in August 1966 to end Indonesia's three-year undeclared war, euphemistically called "confrontation." Indonesia appears not to have abandoned its long-term aim of separating the Borneo states of Sabah and Sarawak from Malaysia, however. Reports indicate a definite shift in tactics from overt military or para-military action to more subtle subversive actions, such as influencing the outcome of elections called for "as soon as practicable" by the August accord. These elections would give the peoples of Sabah and Sarawak opportunity to decide whether they wish to remain in Malaysia.

Indonesian leaders appear to remain convinced that the nation, by virtue of its superior resources in land, people, and military power, is destined to play the essential role among the predominantly Malay peoples of Southeast Asia, and eventually to supplant western power by a regional bloc composed mainly of Indonesia, Malaysia, and the Philippines.

E. Political Parties

Although political parties now have been given a larger role in the present cabinet than in any for several years, and national elections (which were last held in 1955) are planned within the next two years, the influence of

S-E-C-R-E-T

S-E-C-R-E-T

political parties is likely to remain secondary to that of the army. The performance of the political parties during the 1950-56 period of parliamentary government was characterized by opportunistic jockeying for power, and there are many political leaders who favor continued restraints on party activity in the broader interests of stable government. The army also hopes to develop sufficient support among mass organizations not affiliated with political parties to offset the strength of the political parties in an elected congress.

Indonesia's two major parties are the Muslim Scholars (Nahdatul Ulama -- NU) and the Indonesian Nationalist Party (Partai Nasional Indonesia -- PNI). However, Eastern Indonesia -- except for Bali (which is a PNI stronghold) and West Irian (in which party activity was forbidden until mid-1965) -- is notable for the strength of minor religious-based parties. The Indonesian Christian Party (Partai Keristen Indonesia -- Parkindo) and the Catholic Party (Partai Katolik) comprise the majority of Indonesia's approximately three million Protestants and one million Catholics. Their influence in the central government has been far out of proportion to their membership because of the superior educational levels gained by Christian groups through early Western missionary activity. Parkindo strength is centered primarily in northern Celebes, the Lesser Sunda Islands, and the Moluccas, while Partai Katolik adherents are located mainly on the island of Flores and in parts of Java. Both are cooperating with the Moslem groups in anti-PKI activity, but Parkindo members appear to fear that Moslem resurgence in Indonesia will jeopardize the interests of the Christian community.

The Islamic Union Party of Indonesia (Partai Serikat Islam Indonesia -- PSII) is probably the largest political party in north and central Celebes, but it has no significant strength elsewhere in Eastern Indonesia and is a minor party on the national scene. The PSII claims to trace its history back to the beginnings of the Indonesian nationalist movement. The original party was strongly anti-Communist and advocated the establishment of an Islamic state. In recent years the party fell under increasingly pro-Communist leadership, but its original philosophy probably continued to prevail among its Celebes' members.

The NU, although the third largest party nationally in 1955, has only a slim hold in Eastern Indonesia (14.3 percent of the 1955 vote in south and southeast Celebes was its largest vote in the area). The NU is an offshoot of the modern Moslem party, the Masjumi, which was the major party of Eastern

S-E-C-R-E-T

S-E-C-R-E-T

Indonesia until it was banned in 1960 because some of its top leaders were involved in the 1958 PRRI/Permesta rebellion. The anti-Communist Masjumi retains much of its influence in local politics, working through social organizations such as the Muhammadiyah. The NU shows little sign of picking up strength among former Masjumi followers as the NU's political opportunism and strong ties to conservative Moslem elements on Java appear to have limited appeal in Eastern Indonesia.

The PNI -- Indonesia's major secular party as contrasted with those of religious orientation -- has significant strength in Eastern Indonesia only in Bali (where it is the major party) and in north and central Celebes (where it is probably the second largest). However, the PNI is strongly represented among Javanese civil servants stationed in the eastern islands, and they serve as major channels of PNI influence. The PNI is badly split in leadership and orientation. The party has been closely identified with Sukarno and his political philosophy. Although a number of the moderate leaders, who took control of the party's central executive committee in April 1966, would like to repudiate ties with Sukarno, they are constrained by the fact that the PNI organizational base lies in east and central Java where pro-Sukarno and leftist sentiment is strong. In these areas, the PNI positions in the pre-October 1965 era closely paralleled those of the PKI, and in some areas the party has accepted both former and secret PKI members into its ranks. The PNI situation in Bali parallels that in east and central Java, but in the Celebes PNI sentiment probably favors the moderate leaders for their anti-Sukarno views.

F. Influence Groups

The key positions in government and society are controlled by only a few hundred of the ruling elite, most of whom played an active role in the revolution against the Dutch, have advanced Western-style education, and are connected with the Javanese aristocracy. The elite control the government, the military, the political parties, the mass organizations, and the mass communications media. Their influence is supplemented at the local level by the teachers, religious leaders, military officers, and village officials. Business leaders are less influential than in most countries as the government's heavy involvement in the economy makes them dependent on the politicians.

Mass organizations and local associations are important channels of elite leadership and the training ground

S-E-C-R-E-T

S-E-C-R-E-T

for future leaders. All the political parties have affiliated organizations among the major occupational categories as well as among women, youth, and students. There are also some 140 organizations which represent the special interests of the armed forces and various professions, or which were the affiliates of defunct political parties. The army has long attempted to organize the nonparty affiliates in pursuit of a "functional democracy" concept which sees these groups as providing a more stable basis for government than the political parties. While the army's aversion to political parties may have been tempered by the present alliance against Sukarno, the military preference for a relatively authoritarian, corporate state may become an important source of friction in the future. However, the division would not be drawn strictly on military-civilian lines. Many civilian elements, particularly those who belonged to banned parties and have lost their electoral strength, favor the military point of view. The political party leadership, on the other hand, has some sympathizers in military circles and enjoys very active support among independent labor unions, youth organizations, and other functional groups.

A number of individuals drawn from among the youth and student affiliates of the parties created new "action commands" in the days following the October 1965 coup attempt and gave strong support to the army's anti-Communist campaign. In early 1966 militant university students and high school youth in west Java carried the burden of public protest against Sukarno's policies, and in ensuing months demonstrated for further political reforms. The unity which characterized the self-styled "generation of '66" from October through March appeared by mid-1966 to be giving way to internal dissension, and to be fragmenting the support available to the military and civilian government leaders for their complicated task of recasting Indonesian domestic and foreign policy. Student activity in some cases has been curtailed by the army.

Activity by mass organizations has not reached the prominence in Eastern Indonesia that it occupies in Java and Sumatra because of the few urban areas, their remoteness from national political centers, and an apathy born of the area's long disaffection from Djakarta's policies. A few can be singled out, however, for mention as being active in recent months. The south Celebes branch of the anti-Communist Islamic Student Association (Himpunan Mahasiswa Islam - HMI) is larger than the combined strength of all other student organizations and enjoys the active support of military authorities, many of whom were former HMI members.

S-E-C-R-E-T

The Indonesian National Student Movement (Gerakan Mahasiswa Nasional Indonesia - GMNI), an affiliate of the PNI, also has a small but active branch in south Celebes.

Newspapers in Eastern Indonesia pay first attention to local news with national and international affairs of secondary interest. In 1959, 21 newspapers were published in Eastern Indonesia: 12 in Celebes, 4 in the Lesser Sundas, and 5 in the Moluccas. Because of the paucity of information from this area, the present number of publishing papers is not known. Most recently mentioned are: the PNI daily Suara Indonesia (Voice of Indonesia) which is the only newspaper on Bali; Gelora (Flood Tide), a non-party weekly published in Mataran; Marhaen (The Common Man), a daily paper published in Makasar by the left wing of the PNI; Pedoman Rakjat (People's Compass) a Makasar daily which appears to be anti-Communist; and Tjenderawasih (Bird of Paradise) published in Sukarnapura and owned by the former governor of West Irian, E. J. Bonay.

G. Subversion and Insurgency

1. General

The Republic of Indonesia has been plagued by the dissidence of a number of non-Communist movements in addition to the covert operations of the Indonesian Communist Party (PKI). Non-Communist dissident activity, which had been nearly continuous in some parts of the nation since 1950, declined after 1961 and had virtually ceased by mid-1965 as a result of successful counter-operations by the army and the gradual attrition in rebel ranks. The issues which had fostered non-Communist dissidence, however, remained largely unresolved and centered around economic deterioration and ethnic frictions.

The PKI is the major subversive threat to the nation. Its capabilities, however, have been greatly reduced by army countermeasures to the leftist coup attempt of 1 October 1965 in which the PKI took part. The party lost much of its top leadership, as well as most of its communication channels and much of its popular support. The party retained, however, important assets for continuing an underground existence as well as some assistance by individuals within the legal political parties, the police, and the military services.

S-E-C-R-E-T

S-E-C-R-E-T

2. Communist Subversion

Prior to October 1965, the PKI was the third largest Communist party in the world, next after those of the Soviet Union and Communist China. The PKI claimed 3 million members and up to 15 million supporters in its front organizations. While these claims probably represented a great deal of overlapping membership and possibly some fabrication, the PKI was stronger in almost every field than the Indonesian non-Communist parties.

The PKI's participation in the 1 October coup attempt may have been an effort to advance PKI interests in cooperation with other leftist groups rather than a direct bid for power. The coup attempt represented a nearly fatal miscalculation, as the army, which has long regarded the PKI as its major domestic enemy, used the party's involvement to justify a campaign to destroy it. By late November 1965, the party had been suppressed as an overt political party. The PKI and its front organizations were officially banned by the army in March 1966, an action which received legislative endorsement in June 1966. According to an official estimate in early 1966, some 78,000 persons either known or suspected as Communists had been killed throughout Indonesia, both as a result of army actions and of reprisals by militant Moslem groups. Unofficial estimates ran as high as 500,000 but a plausible figure appeared to be about 150,000 total deaths. The PKI was reduced to a lean, clandestine structure with minimum communication among its units. All but the hard core of the party apparently had melted away. No reliable figure for active membership was available although Indonesian sources suggested a total of about 100,000. It was estimated that possibly 28 of the 50 central committee members had survived and were giving direction to the party, and that the 29 provincial and island committees were granted virtual autonomy to determine their own actions without consulting the central committee or each other. Dominant PKI activity was focused on the infiltration of neighborhood associations and village committees and could be conducted from the cell level with little or no supervision. Reports in early 1966 indicated that the PKI leadership in east and central Java, the major areas of Communist strength, was relatively intact. The PKI also had secret members in other parties, particularly the left wing of the Nationalist Party (PNI), and in formerly Communist-controlled youth and labor groups. Although these provide a base for party survival underground, the PKI has been unable to direct these organizations to any significant degree.

S-E-C-R-E-T

S-E-C-R-E-T

With the notable exception of the island of Bali, the PKI had only small, scattered branches in Eastern Indonesia; in Bali, it was the second largest political party. Anti-Communist purges did not begin in the areas of Eastern Indonesia until November 1965 and were greatly interwoven with local animosities and issues. The loss of life by known and suspected Communists was particularly heavy on Bali where the PKI had entered deeply into village rivalries and where tension between community factions had been building up during the previous year. Much of the killing took on the nature of settling old quarrels, and Balinese life has been severely disturbed as a result. The strong position of pro-leftist leaders of the island's main party, the PNI, continues to offer opportunity for clandestine Communist activity. Reprisals against the Communists were also reported in other parts of Eastern Indonesia, particularly in the vicinity of Makasar and on Lombok and Sumbawa where the Chinese community was also heavily attacked.

3. Non-Communist Subversive Activity

a. The Kahar Muzakkar Rebellion

Since 1950 south Celebes has been an area of almost constant insurrection directed against the Djakarta administration. Dissidence has been motivated by regionalism, economic and political discontent, and the personality of the chief leader, Kahar Muzakkar, who had been a capable guerrilla fighter against the Dutch in Java and Celebes during the revolution. Muzakkar launched his revolt when the post of regional army commander was given to a Javanese regular army officer instead of to him following the expulsion of the Dutch. A major defection was caused in 1953 by Muzakkar's affiliation with Darul Islam, a loose federation of dissident movements in western Java and northern Sumatra with the stated aim of creating an Islamic republic. Rebel forces have undergone repeated splits and reconciliations, with some elements occasionally being absorbed by the army and later rejoining the dissidents with their supplies and equipment. These changes have caused rebel strength to rise and fall and the geographic area of activity to expand and contract by turns.

Following a ten-month truce Muzakkar renewed warfare against the government in 1962, and by 1964 an estimated 7,000 troops, mostly Javanese, were employed in stepped-up operations against him. In September 1964 Andi Selle, a local warlord and periodically Muzakkar's ally, was killed, and in February 1965 Muzakkar himself was slain in a surprise ambush by government forces. Remnants of their troops continue to

S-E-C-R-E-T

S-E-C-R-E-T

conduct guerrilla operations but now probably number less than 1,000 men.

b. The Republic of the South Moluccas

The Republic of the South Moluccas (RMS), with its capital at Amboina and including the islands of Buru, Ceram, Wetar, Tanimbar, Kai, and Aru, was proclaimed in 1950. The movement was strongly supported by the Amboinese, many of whom had served in the Dutch colonial army and had misgivings about their future under a Javanese-based government. After a government expeditionary force invaded Amboina in September 1950, the rebels conducted intermittent guerrilla operations on the nearby island of Ceram for more than 10 years. Faced with the necessity of preparing a secure base for operations against Dutch-held West Irian, the central government virtually wiped out the movement in 1961. Soumokil, the president of the short-lived "republic," was not captured until late 1963 and, following a trial for treason, was executed in early 1966. Fewer than 100 rebels are estimated to be still at large.

c. PRRI/Permesta Rebellion

Long-smoldering discontent broke out in northern and central Sumatra and in northern Celebes in late 1956 and early 1957 when the local military commanders assumed both military and civil powers in their areas without the consent of the central government. Open rebellion began in February 1958 when the government rejected the demands of the rebel leaders for cabinet changes, curbing of Sukarno's power, and anti-Communist action. The Revolutionary Government of the Republic of Indonesia (Pemerintah Revolusioner Republik Indonesia - PRRI) was formed in Sumatra, incorporating the "Universal Struggle Movement (Permesta)" of northern Celebes. The rebel movement was a serious threat to the central government only briefly in its opening months. First capturing the Sumatran centers of rebel activity, the government landed forces in north Celebes in June 1958 and, despite bitter resistance, soon captured important coastal and inland towns. The Permesta forces conducted guerrilla operations from the mountainous interior areas until the negotiated surrender of key forces in April 1961. Permesta armed strength probably totalled about 4,000 men, although the aims of the movement were widely supported throughout Eastern Indonesia. PRRI/Permesta leaders won the support of Kahar Muzakkar for the formation of a successor government to the PRRI -- the "Federal Republic of Indonesia (RPI)" -- in February 1960, but his adherence at that late date was of no military value to the movement.

S-E-C-R-E-T

4. Papuan Dissidence

Increasing friction between the Indonesians (who took over the administration of Irian Barat Province in May 1963) and the Papuan population led to small-scale clashes in June and July 1965 and a deepening alienation between the two communities. At the outset, the Indonesians had recognized that they did not enjoy wide popular support; a 1963 Indonesian estimate reportedly placed "pro-Indonesian" strength at about 10 percent of the total population, chiefly concentrated among the Indonesian immigrants. The Indonesian Government moved quickly to establish de facto control by integrating the Papuan security forces into the new administrative structure and by wooing or intimidating a number of influential Papuan political leaders. These measures initially had some success, but an increasing number of politically active Papuans have become antagonized by Indonesian tactics and suspicious that the Indonesians intend to renege on the 1962 Dutch-Indonesian agreement calling for some form of self-determination before 1970 under UN auspices.

Relations between the two communities have also been embittered by the patronizing attitude of most Indonesian civil servants and the indiscipline of army troops. Economic grievances have added sharply to local criticism. Since January 1965, inflation has been marked, consumer goods have almost disappeared, and both local and imported produce has been commandeered or rapidly bought up by the Indonesians. In October 1965 West New Guinea, which until then was subsidized by the United Nations and by the Netherlands and Indonesian governments as a separate currency area, was fully incorporated into the currency and customs system of Indonesia and became fully dependent on Indonesia for economic assistance. Indonesian subsidies declined each year between 1963 and 1966, however, and public works have been reduced with a resulting increase in unemployment. In 1966 even the provision of basic services deteriorated.

In August 1966 a high-level delegation, led by the Indonesian Foreign Minister, visited West New Guinea and reportedly promised limited amounts of essential consumer goods to alleviate the local dissatisfaction and to impress the local leaders with the good intentions of the present administration. The government's capability to provide economic assistance is greatly handicapped by economic deterioration throughout Indonesia.

S-E-C-R-E-T

S-E-C-R-E-T

5. The Chinese

The Chinese minority, estimated at 3 million, is regarded by most Indonesians as a potential subversive threat because of its overseas ties with either the Communist or Nationalist regimes. In addition, the Chinese have been traditionally disliked because of their domination of commerce throughout most of Indonesia. The government's current anti-Peking orientation has combined with traditional Indonesian prejudices to generate the highest level of anti-Chinese demonstrations since independence. Chinese schools and associations in wide areas of Indonesia have been confiscated outright or placed under military "protection", and Chinese businesses have been damaged. Leaders of the Chinese community in some parts of the nation are being encouraged by the military to form anti-Peking organizations and to assume a strong anti-Communist stance in order to protect themselves from attack and to move into the vacuum in Chinese leadership caused by the disintegration of pro-Communist Chinese groups.

H. Portuguese Timor

1. Administration

Portuguese Timor is an overseas province of the Republic of Portugal, and its government is responsible to the Portuguese Overseas Ministry. The territory is run by members of the Portuguese overseas administrative corps; it is headed by a governor, appointed by the central government, and his cabinet. The cabinet consists of the directors of provincial services such as posts and telegraphs, customs, treasury, and public works. An 11-member government council, 3 members of which are elected, serves as advisor to the governor. Other principal authorities in Timor include the Roman Catholic Bishop of Portuguese Timor, the chief justice, the commander of the Portuguese army, and the chief of the Timor Air Transport Service.

Legislation can originate in Lisbon with the national assembly, the cabinet, or the overseas minister, or with the local governor himself, depending on its nature and scope. A single district court, serving the judicial needs of the entire territory, sits in Dili, and judgments may be appealed to the supreme court of Portugal. The court system applies primarily to non-indigenous inhabitants and to indigenous Christians; the large native groups observe tribal laws and are judged by their local chieftains.

S-E-C-R-E-T

S-E-C-R-E-T

Portuguese Timor is divided into ten administrative regions comprising the enclave (circunscricao) of Ocussi, and the districts (concelhos) of Dili, Ermera, Bobonaro, Lautem, Manatuto, Baucau, Suro, Cova-Lima, and Viqueque. These in turn are divided into some 40 subdivisions (sucos), each of which includes a number of villages. Every region has an administrator, an assistant administrator or secretary, and a doctor. There is also a native chief for each region. Under the governor's cabinet, the general administration of the province, exclusive of technical services, is in the hands of the regional administrators. They act as law enforcers, judges, prosecutors, security chiefs, and tax collectors, and are responsible for preparing and supervising all plans for improvements. The real centers of administrative power in Portuguese Timor, however, are the district officers who deal directly with the native chiefs with the help of one assistant.

Political activity is insignificant because of several factors. Free political activity has been restricted in metropolitan Portugal since 1928, and similar limitations have been extended to the province. All political parties other than the official party of the Salazar government are outlawed. The three elected members of the government council are chosen by an electorate limited to metropolitan Portuguese and a small number of educated Asians and Africans which represents only a small fraction of the total population. The only other elective officials in Portuguese Timor are some 411 indigenous tribal chieftains who are elected for life by their respective tribes.

2. Subversion

The Portuguese society reflects the political divisions which exist in the metropolitan area. Many of the officials in the colonial administration have been given assignments away from Portugal because of their opposition to the policies of the Salazar government. Although they have not constituted a threat to the security of the province and would not lend themselves to subversion by neighboring forces, their discontent with the Salazar government has brought them under constant surveillance by the omnipresent PIDE (Polícia Internacional e de Defesa do Estado - International and State Defense Police). Vocal proponents for a modest policy of reform in native administration (more numerous among the military than the civilian administrators) have often been removed or reassigned to uninfluential posts.

S-E-C-R-E-T

The native population is almost entirely illiterate and still tied to an ancient tribal system which dictates loyalty to the village chieftains. The relatively few semi-educated Timorese and the Eurasians resent colonial policies which exclude them from responsible administrative positions, although Eurasians are occasionally found in relatively senior executive jobs in the colonial hierarchy. Potentially exploitable issues lie in recurrent frictions between native chieftains and Portuguese district officers, and in the wide disparity in culture and living standards between the European and native communities. The shaky foundation of native loyalty to the Portuguese regime became evident during World War II when the Japanese successfully organized groups of natives to attack Portuguese installations and in 1959 when an abortive rebellion was instigated by a small group of educated natives who were incited by a few Indonesian refugees.

Since mid-1962, when Indonesia's efforts to oust the Dutch from West New Guinea were successfully concluded, the Indonesian Government has given increased attention to plans for the "liberation" of Portuguese Timor. Both political subversion and the provocation of border incidents to justify Indonesian attack are reported as likely tactics, but preliminary work appears to have been slowed by the higher priority needs of the anti-Malaysian operations. In 1963 the formation of the "Unitary Republic of Timor" was announced, with a provisional capital at Batugade, a few miles on the Portuguese side of the border. Apparently a creation of the Indonesians and existing chiefly on paper, it has received relatively little propaganda attention. Several organizations have been formed in Indonesia representing alleged Timorese sentiments for independence. They include the Indonesian Movement of the Opponents of Colonialism (formed in 1956), the Committee for the Liberation of Timor (1961), and the Bureau for the Liberation of the Timor Republic (1961). Although there appears to be no fixed timetable for a major Indonesian move against the Portuguese, the existence of these small liberation movements, recurrent border friction usually involving quarrels between trans-border tribes, and the ready availability of military forces from Indonesian Timor and Celebes allow the Indonesian Government some flexibility in its choice of diplomatic, subversive, or military actions against Portuguese Timor. Outwardly, the Portuguese and Indonesian governments keep up the appearance of friendly relations. Although diplomatic representation was reduced to consular status in early 1965, at Indonesian insistence, both countries refrained from publicizing the event. At the time, it was alleged that Indonesia intended to make the announcement at

S-E-C-R-E-T

S-E-C-R-E-T

a moment when propaganda could be gained among the Afro-Asian nations.

The Chinese community is regarded by the Portuguese officials with the suspicion and resentment they encounter elsewhere in Southeast Asia. Probably numbering about 7,000 (or 1.3 percent of the population), the Chinese live in their own communities and maintain their own schools. They were offered Portuguese citizenship in 1960 but most declined. Chinese born in Portuguese Timor do not become citizens automatically but must choose at age 14; in the absence of affirmative action, the child remains a Chinese national but is provided with permanent residence documents.

The Portuguese maintain diplomatic relations with the Government of the Republic of China. The Chinese Nationalist Consul at Dili cooperates with the Portuguese officials at screening out Communists among the few Chinese immigrants and teachers and promotes Kuomintang (KMT) influences among the local community. While the KMT cannot be officially registered as a political entity owing to Portuguese recognition of only one party, it is openly tolerated as a means of controlling the politics of the Chinese community and its schools.

S-E-C-R-E-T

S-E-C-R-E-T

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S-E-C-R-E-T

VI. Economy

A. General

The Indonesian islands east of Java exhibit great diversity with regard to degree of economic development and extent of influence from modern civilization. On Bali, agricultural practices are highly developed, as characterized by the intricate system of irrigation canals used in rice cultivation. The population density is extremely high, comparable to that found on Java, and the economy of the island is relatively advanced. In West Irian, on the other hand, economic development is practically nonexistent because of its remoteness from developed population centers, its wide coastal swamps, and its rugged interior inhabited by primitive people.

Agricultural practices change markedly as one travels eastward from Java. While wet rice is grown in Bali, Celebes, and parts of the Lesser Sunda Islands, most of the people living in the eastern islands practice slash and burn agriculture, moving when the land no longer supports a crop. Most people provide for their own needs by farming, hunting, and fishing, with little if any exchange of money. Growing cash crops is for the most part confined to those areas where there has been western influence.

Most of the area's natural resources have not been exploited, and in fact many areas remain unexplored. Petroleum is the most significant of the known mineral resources, but continued production has not been profitable. There are few industrial or electrical facilities in the area although some foreign assistance has been extended for their development.

B. Mineral Resources

The mineral resources of the Indonesian islands east of Java have not been fully assessed or exploited. Oil is found on Ceram, Timor, and West Irian. These reserves, however, are not as abundant as those found on Sumatra and Borneo; and at present there is no commercial production. Nickel ore is found in southern Celebes and Waigeo Island. The Japanese have signed a production sharing agreement to extract nickel ores at Pomalaa, Celebes. Copper deposits also have been found on Celebes, and in 1964 Yugoslavia signed a production sharing agreement for their exploitation. The only other mineral now commercially mined is asphalt from a deposit on Bintung Island off the southeastern coast of Celebes. Traces of low-grade iron ores, cobalt, platinum, gold, silver, and manganese have been found in the eastern Indonesian islands,

S-E-C-R-E-T

S-E-C-R-E-T

but the extent of the deposits is not fully known, and commercial mining would be hindered by the remoteness of the deposits from transport facilities.

C. Agriculture

Agricultural practices in the eastern islands of Indonesia show marked contrasts to those prevailing in Java. There is little estate agriculture. Good agricultural land is limited. Most cultivation follows the slash and burn pattern rather than the more permanent irrigated and fertilized cultivation (sawah) common to Java. Although rice is the staple food for most Indonesians, its importance diminishes as one travels eastward from Java. Only where there is a substantial cash economy is rice an important foodstuff; in most areas sago and maize are the common staples. Copra is the leading cash crop, far surpassing the once famous cloves and nutmegs of the Spice Islands.

Only in Bali and scattered areas of Celebes and the Lesser Sundas is sawah cultivation practiced to any extent. The irrigation of fields is highly developed on Bali and presents a sharp contrast to the primitive agriculture carried out in most of these islands. Rice terraces, sometimes only two yards wide, are carved into the hillsides of Bali and bamboo aqueducts and underground canals are used throughout the island.

Swidden agriculture, predominating outside of Bali, is characterized by cut and burned clearings, by the rotation of fields rather than of crops, and by short cropping periods alternating with long fallow periods. Copra is especially well suited to swidden cultivation. The future importance of copra production, however, is uncertain because its market is threatened by increased competition from other vegetable oils and from synthetic detergents. Most copra cultivation is done by native small holders. Although some large estates are scattered throughout the eastern islands, their commercial importance has diminished in recent years. In addition to copra, estates produce coffee, tobacco, and spices. Although the spices of the Moluccas first attracted foreign traders to the Indies, they are now of little commercial importance. Pepper production is now only a quarter that of 1938, and Indonesia imports cloves for its spiced "Kretek" cigarettes.

Most cultivation in the eastern islands is done on a subsistence basis. Maize and sago are the principle foodstuffs. These are supplemented with cassava, sweet potatoes, taro, peanuts, soybeans, red pepper, and onions. In the drier eastern parts of the Lesser Sundas, cattle raising is important. Small numbers of cattle are exported, but the use of animals for

S-E-C-R-E-T

draft purposes is unknown.

D. Forestry and Fishing

Although most of the eastern Indonesian islands are heavily forested, timber is not an important commercial export. Patterns of vegetation differ significantly between islands because of climatic differences. In the Lesser Sundas, where there is a long and intense dry season, only scrub-like vegetation is found. In Celebes and West Irian dense equatorial forests prevail. Forest products are exported from Bali and Celebes, but more widespread exploitation of forest resources is unlikely because of the difficulties in getting timber from the remote areas.

Fish is the main source of animal protein in the Indonesian diet. In the eastern islands, fishing is largely confined to coastal villages, although in Celebes there is some inland fishing, especially in Lake Tempe. Most fishing is on a small scale sufficient only to meet the needs of the local population. The US has attempted to encourage commercial fishing for export by financing the development of fisheries at Ambon and Ternate.

E. Industry and Electric Power

There are few industrial plants on the eastern Indonesian islands. Most of the existing facilities are designed to process commodities for export. There are several sawmills and a copra factory at Sukur in the Minahasa area of Celebes. There are also a few small plants producing consumer goods such as cigarettes, canned goods, dyes, ice, and soft drinks. Indonesian development plans have made some provision for building industrial facilities on the eastern islands, but little has been done to carry out these plans. Both Communist and Western countries, however, have provided loans to finance the construction of industrial facilities such as a cement plant, cane sugar mill, shipyards, and a paper plant. Little progress has been made on these projects because of administrative bottlenecks, such as the central government's failure to provide the necessary local currency.

There are almost no generating facilities on the islands except for small diesel stations in some of the main towns.

F. Employment and Labor

In general, people living in the eastern islands are self-employed and dwell in small self-sufficient communities.

S-E-C-R-E-T

S-E-C-R-E-T

Most of the natives are engaged in subsistence agriculture and supplement their diet by fishing and hunting. On Celebes, Lombok, and some islands of the Lesser Sundas, native farmers may also cultivate small plots to grow cash crops such as copra, tobacco, and coffee. On Flores, Sumba, and Timor, cattle raising is also an important subsidiary occupation. Because of the relative ease in subsisting, there is little incentive for the natives to work for wages. Most of the estates and mines located on the islands have relied heavily on imported labor.

G. Foreign Aid

Both Western and Communist countries have provided economic assistance for the development of the eastern islands of Indonesia. The largest share of this aid has been allocated to Celebes. The Japanese are building a paper mill at Makasar under a war reparations agreement. The Czechs have begun constructing a cement plant at Tonasa, near Makasar, and are planning to construct a sugar mill in the southern part of the island. Aid has also been extended for various resource surveys and for the development of domestic transportation facilities in the eastern part of the Indonesian archipelago. The US has improved harbor facilities, and Poland has extended credits for the construction of shipyards. The Soviets have agreed to erect a school of oceanography on Amboina Island, but little construction has been noted. The Japanese are building a tourist hotel on Bali and are establishing a telecommunication system connecting Lombok, Bali, and Java. The UN initially promised to extend assistance, valued at about \$30 million, for the exploration and development of resources on West Irian. When Indonesia withdrew from the UN these funds were halted, although Indonesian leaders apparently hope that the Netherlands will be willing to undertake the aid project alone. In the eastern islands as in other parts of Indonesia, the Sukarno-dominated central government did not fully utilize the available economic aid.

S-E-C-R-E-T

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S-E-C-R-E-T

S-E-C-R-E-T

VII. TransportationA. Roads

See Figures 126 through 148.

Surface transportation in Eastern Indonesia is limited to trails and to inadequate networks of roads, as there are no rail lines. In 1961 the Indonesian Government reported 6,841 miles of roads on Celebes, 1,049 on Bali, 907 on Nusa Tenggara Barat (Western Lesser Sundas), 1,731 on Nusa Tenggara Timur (Eastern Lesser Sundas), 800 on the Molucca Islands, and 40 on West New Guinea. The last figure may be too small, however, as the Netherlands Government in its 1961 report to the United Nations claimed that West New Guinea had 800 kilometers (about 600 miles) of roads, a more likely figure.

Road conditions throughout Eastern Indonesia are poorest during wet weather when roads in the lowlands may be inundated, roads in the mountains may be blocked by landslides, and roads in all types of terrain may be obstructed by fallen trees and -- on lightly traveled roads -- by rapidly encroaching vegetation (see Figure 132). Roads may be unusable because of washed-out bridges, and the fords and ferries that would normally replace bridges may also be unusable because of the swift currents. Traffic can do little except wait for the rains to subside. Although nonrainy periods may be short, water levels in the rivers usually drop rapidly after the rains stop. Muddy conditions, however, may persist for some time. Even during dry weather most of the roads of Eastern Indonesia are not good. Potholes, which are numerous and deep on all types of roads, and steep grades and sharp turns in mountainous terrain (see Figure 126) force vehicles to travel at slow or moderate speeds. Jeeps or similar vehicles with four-wheel drive are recommended. The dusty conditions that prevail during dry weather do not seriously affect vehicular movement but are not conducive to comfortable travel.

All roads in Eastern Indonesia suffer from lack of maintenance. Many were damaged during World War II, during the ensuing fight for independence, during the rebellions of the 1950's, or, on Bali, by the eruption of Mt. Agung in 1963. Much damage remains unrepaired, and most of the repair work that has been done is poor. Standards for newly constructed roads or for the surfacing of existing roads are low. Primary roads are surfaced with asphalt thinly spread on bases of gravel, crushed rock or laterite, and they deteriorate rapidly. Some secondary roads are constructed with the same base but are unsealed; secondary roads in areas where timber is abundant may be of the corduroy type; still other secondary roads are simply dirt tracks. The last are most

S-E-C-R-E-T

S-E-C-R-E-T

likely to be untrafficable in wet weather. A few major roads near urban areas have two lanes; in rural areas roads are single lane and vary in width from 9 to 12 feet. Shoulders are narrow or lacking, although near urban centers they may be wide enough to accommodate animal-drawn carts.

The lack of good bridges hinders vehicular traffic throughout Eastern Indonesia. Many bridges have been damaged or destroyed during the past 25 years and, although most have been replaced or repaired, nearly all have been reduced to a lower load-carrying capacity by poor construction standards. Most bridges are of timber, but a few of the major ones are of steel with timber decking (see Figure 128). Bridges are narrow, with few more than one lane wide and most of them a tight squeeze for a 1 1/2-ton truck. During heavy rains, water may reach well above the bridge decking and cause severe damage; entire bridges are often washed away. There may be no barricade or sign to indicate that a bridge is out, and the lack of warning is especially hazardous if the approaches to the bridge are steep. Considerable time may elapse before bridges are repaired or replaced, and fords or -- where the riverbeds are too soft or the water too deep -- ferries must be used in the meantime (see Figure 129). On secondary roads that are little used, fords or ferries may be permanent features, in the absence of bridges. Most fords and ferries are unusable in wet weather (see Figure 145). Even during low water, fords may be difficult because of steep riverbanks.

Most of the roads on Celebes are located in the southwestern peninsula centered on Makasar or at the eastern end of the northern peninsula centered on Manado. Elsewhere on the island roads are few and are confined to coastal areas or to valleys that extend into the interior from the coasts. Much of the eastern and southeastern peninsulas and the central core area are devoid of roads.

Of the islands of the Lesser Sundas and the Moluccas, only Bali and Lombok have relatively dense road networks. On Sumbawa, Flores, Sumba, and Timor roads traverse the length of the islands and spurs extend into the major populated areas. On the easternmost islands of the Lesser Sundas and on the islands of the Moluccas roads follow no systematic pattern but are generally limited to short stretches in the immediate vicinities of major urban areas. Only on Amboina is there a long stretch of relatively good road (see Figure 146).

Roads and jeepable tracks on West New Guinea are confined to the immediate environs of the few major urban areas and to the oilfield areas of the Vogelkop Peninsula (see Figures 147 and 148).

Since the curtailment of the activities of oil companies on West New Guinea, however, most of the roads in the Vogelkop have deteriorated.

Alignment of roads as shown on maps may not be accurate, and indication of a road on a map is no assurance of its existence, particularly if the map is out of date. On the other hand, few roads have been constructed in Eastern Indonesia since World War II, and all significant roads are likely to be shown even on 20-year-old maps.

Travel on foot or on horseback is the usual mode of movement in Eastern Indonesia. Motor vehicles are common only in the vicinity of major urban areas. Animal-drawn carts generally are the only vehicles in rural areas.

B. Trails

In the more populous regions of Eastern Indonesia trails serve as feeders to the road and coastal waterways systems in the movement of people and goods. In the more remote and less populous areas they may provide the only overland travel routes. The swampy southern lowland of West New Guinea is the only part of Eastern Indonesia where a network of trails is almost completely lacking. Cross-country travel in this vast area can be accomplished only by hacking one's way through dense swamp-land vegetation.

Trails between villages and trails connecting villages with their agricultural lands (which may be several miles away) are not permanent in most parts of Eastern Indonesia because the villages are moved every few years as soils become depleted. The abandoned trails quickly become overgrown with vegetation. Trail information on maps, therefore, is highly ephemeral.

Trails are commonly narrow in both lowland and upland areas. In the lowlands, width is limited principally by vegetation, whereas in the mountains trails are narrow where they hug precipitous slopes. Travel on steep mountain trails is grueling, particularly during rainy weather when surfaces are likely to be slippery. Trails in the lowlands can be used by horses as well as by pedestrians, but the steepness and narrowness of trails in the uplands limit their use to pedestrians.

The crossing of rivers poses a difficult problem for the traveler, particularly in West New Guinea where the waters are most likely to be torrential and bridges most likely to be lacking. Footbridges throughout Eastern Indonesia are

S-E-C-R-E-T



Figure 126. Road in hilly terrain near Manado, Celebes.
Note switchback. 1964

S-E-C-R-E-T

S-E-C-R-E-T



Figure 127. Coastal highway southeast of Makasar. 1962

S-E-C-R-E-T

S-E-C-R-E-T



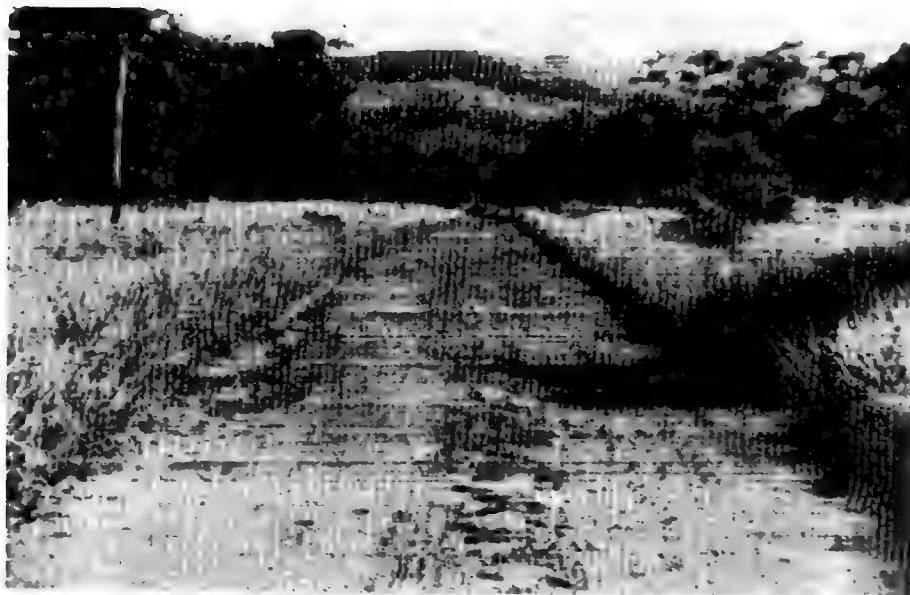
Figure 128. Bridge on road between Makasar and Parepare, Celebes. 1959



Figure 129. Ferry crossing river in central Celebes. Remnants of destroyed bridge are at right. 1959

S-E-C-R-E-T

S-E-C-R-E-T

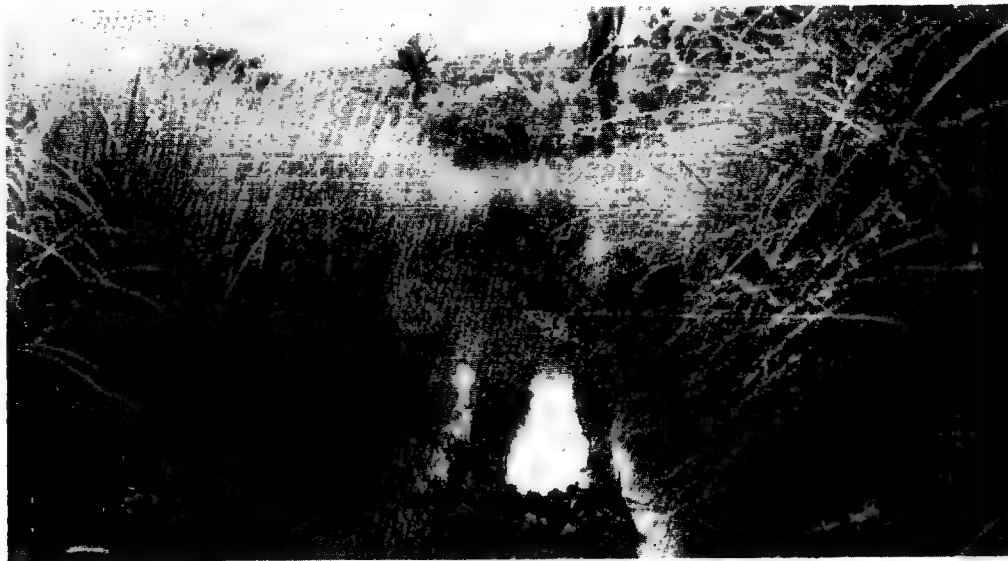


Figures 130 & 131. Main road on Sumbawa. 1959



S-E-C-R-E-T

S-E-C-R-E-T

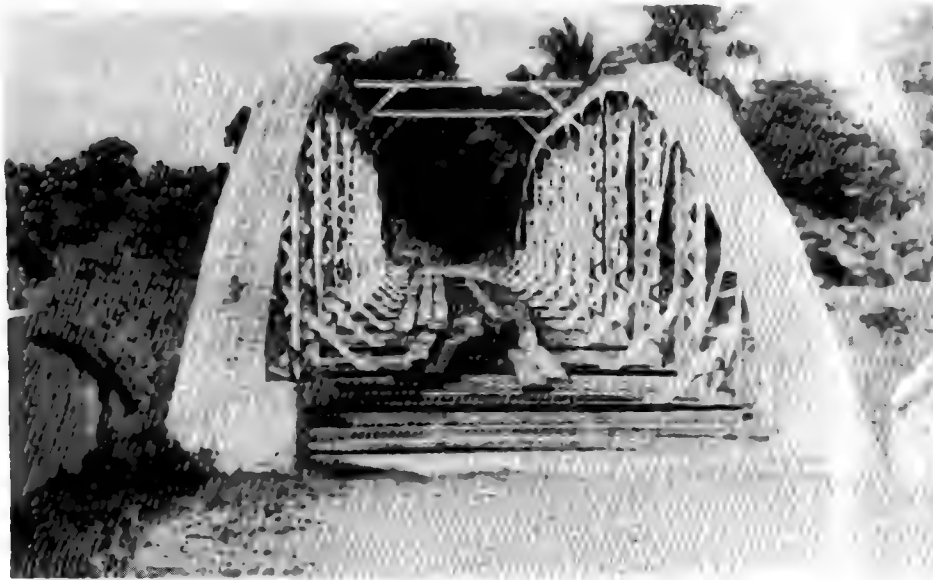


Figures 132 & 133. Main east-west road on Flores. Note rapidly encroaching vegetation in upper photo, which has nearly engulfed road. Muddy condition would preclude use of road by most vehicles in wet weather. Lower photo shows typical washout due to inadequate drainage. 1959



S-E-C-R-E-T

S-E-C-R-E-T



Figures 134 & 135. Bridges on main east-west road on Flores. Condition of bridge floors is typical. 1959

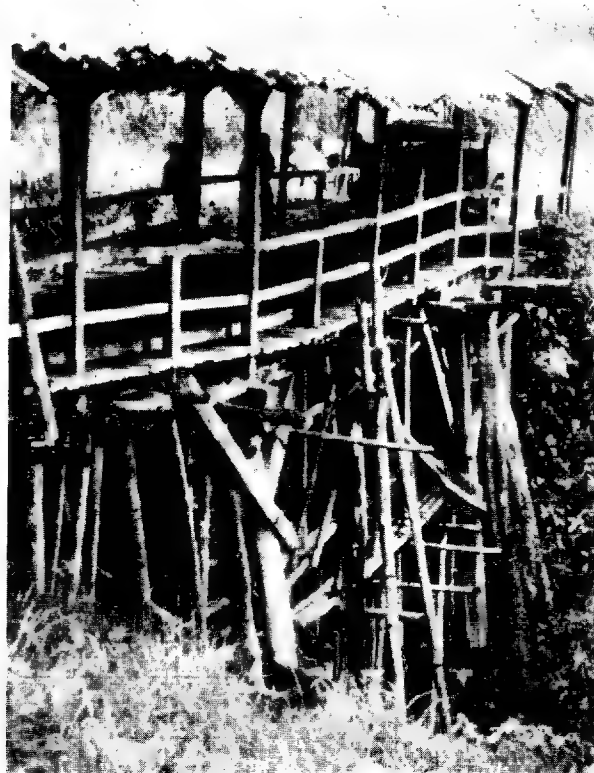


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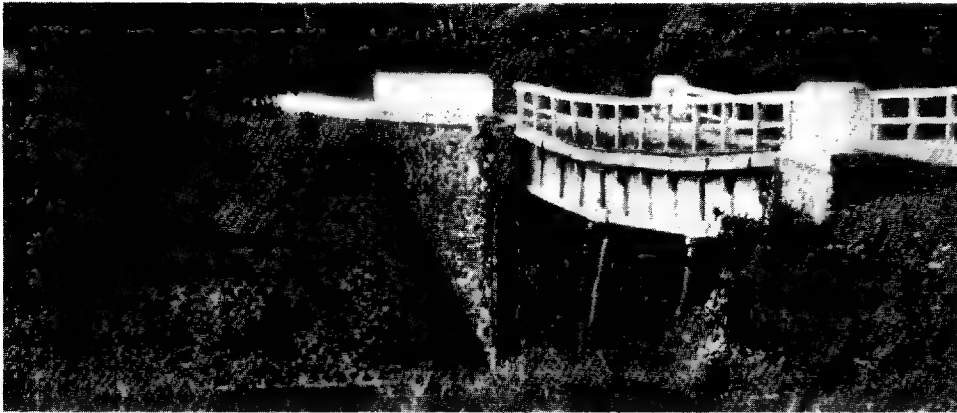
Figures 136 & 137. Covered bridges on Flores. Flimsy construction precludes transportation of heavy loads. Covered bridges are believed to be found only on Flores. 1959



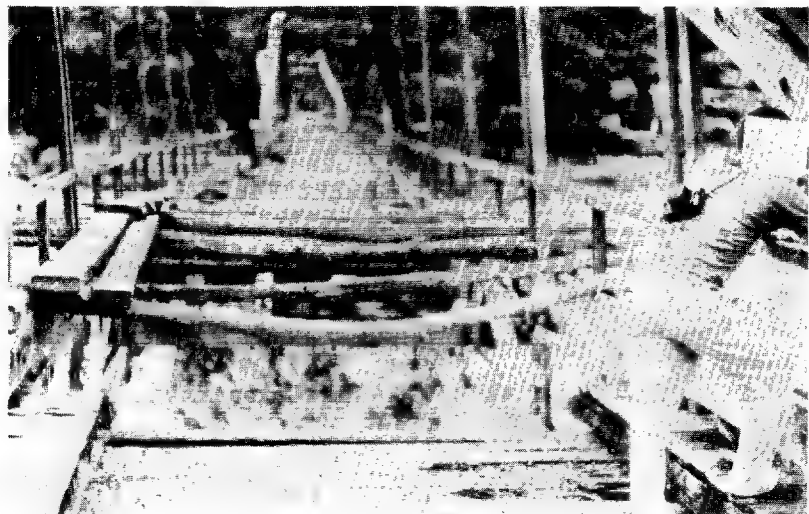
S-E-C-R-E-T



Figures 138 - 140. Major road in Indonesian Timor. Except for presence of scattered rocks and potholes this road would be suitable for use by most vehicles in dry weather; in wet weather, however, surface would be slippery and road suitable for use only by tracked vehicles or by vehicles with four-wheel drive. 1959-60



Figures 141-143.
Bridges between Indonesian and Portuguese Timor. Conditions of bridges are typical. Decking is often washed away during wet season but, in most cases, could be readily replaced.
1959-63



S-E-C-R-E-T



Figure 144. Dry bed of Mina River in Indonesian Timor. Except during rainy season when currents may become torrential, rivers of Eastern Indonesia are commonly dry and vehicles can cross at many points without difficulty. Dry riverbeds serve as transportation routes for traffic on foot and on horseback. Probably 1964.

S-E-C-R-E-T

S-E-C-R-E-T



Figure 145. Truck stuck in ford across Mina River in Indonesian Timor. Fords should not be traversed without prior examination of depth of water, speed of current, and condition of riverbed. Probably 1964.



Figure 146. Road near Amboina on Amboina Island. This road is one of the few good ones in Eastern Indonesia. 1964

S-E-C-R-E-T

S-E-C-R-E-T



Figures 147 & 148. Road construction in the Vogelkop Peninsula in West New Guinea. Because of cessation of oil drilling, most roads in this area are in disrepair and no longer used. 1953

S-E-C-R-E-T

S-E-C-R-E-T

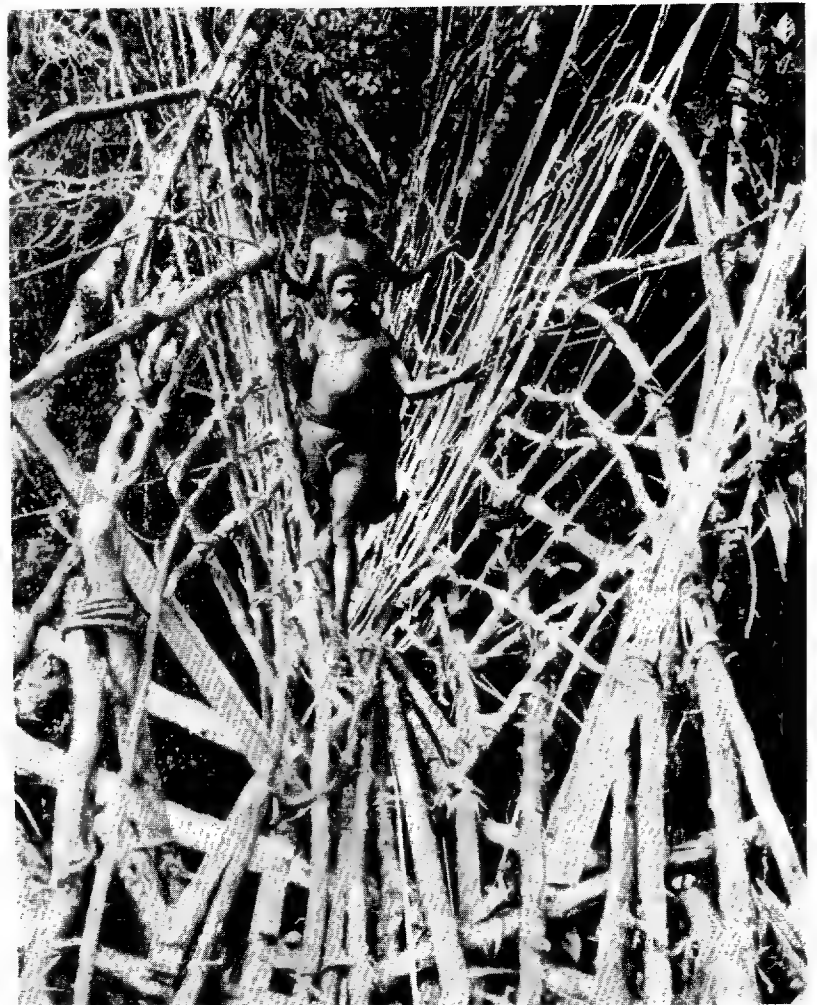


Figure 149. Bamboo footbridge on Celebes. Such bridges are commonly washed away by flash floods.

S-E-C-R-E-T



Figures 150 & 151.
Two footbridges in
highlands of West New
Guinea. One below is
constructed of tree
branches and fiber;
flimsy bridge at
left is of jungle vines
and fiber. Note that
several cords have
given way.



S-E-C-R-E-T

flimsily built of bamboo, tree limbs, or vines, tied together with jungle fibers (see Figures 149 through 151). They are often washed away by flash floods and, at best, last only a few years. Streams in Celebes, the Lesser Sundas, and the Moluccas can be forded in most stretches, except during flash floods, which usually are of short duration. In West New Guinea, however, high waters and torrential currents are likely to persist for some time, and travelers may need to erect temporary bridges.

C. Marine Transport

See Figures 152 through 157.

Marine transport serves as the major means of supply and interchange for the islands of Eastern Indonesia, as well as a major vehicle for the movement of goods within islands. Coastal shipping, primarily by small craft, has developed largely because of the poorly developed land transportation systems on most of the islands. Shipping within Indonesia is carried out by some 300 ships controlled by the National Indonesian Navigation Company (PELNI), a government agency, and by about 70 foreign vessels chartered by the Indonesian Government. In addition, several thousand small native vessels -- a sizable percentage of them sailed by the Makasarese and Bugis of southwestern Celebes -- carry cargoes throughout the seas of Eastern Indonesia.

Although most of its ships are fairly new, the PELNI fleet operates at only about 30 percent efficiency; most ships already need extensive rehabilitation, and many are inoperable owing to lack of maintenance or need for spare parts. Among the active ships, cargo capacities are not fully utilized and transfer of cargoes is woefully inefficient; it is not unusual for a ship to lie at anchor in a harbor for several weeks before the cargo is unloaded. Theft of cargoes by dockhands and officials is common. Shipping problems are further aggravated by inadequate and poorly maintained port facilities, by lack of operable dredging equipment to compensate for rapidly silting harbors, and by the presence in many harbors of wrecks of ships sunk during World War II, which are hazards to navigation.

Sailors with experience in local waters should be employed or consulted before undertaking operations involving small craft in the seas of Eastern Indonesia. Interisland travel in the Lesser Sundas area may be particularly hazardous because, like floodgates, the channels between the islands rise and fall with the tides; the currents sweep from

S-E-C-R-E-T

sea to sea at speeds sometimes up to 10 knots. These strong channel currents can radically alter the courses of small craft traveling between the islands. Strong winds and squalls are a problem for small craft throughout Eastern Indonesia, particularly during the northwest monsoon (December through February). Unmarked (and sometimes uncharted) reefs and shoals are an additional hazard.

Details for the major ports of Eastern Indonesia are given below.

AMBOINA
3°43'S - 128°12'E

General: Principal port of Molucca Islands and major bunkering station. On east side of Amboina Bay.

Approaches: Clear, with port well sheltered throughout year.

Anchorage: Possible only close inshore. Depths in bay too great (as much as 58 fathoms).

Berthing Facilities: Port has frontage of 5 miles. Wharf approximately 650 feet long, with alongside depth of 30 feet; construction (financed by USAID) completed in 1966. Oil wharf 272 feet long, with alongside depth of 18 feet. Several piers. Wharf 500 feet long, with alongside depth of 30 feet, recently constructed at naval port of Halong, 3 miles north-east of main docking area.

Covered Storage: Last reported to be 29,000 square feet, but additional warehouses recently constructed.

Port Clearance: By road.

BENOA
8°46'S - 115°13'E

General: Port for Denpasar, on south coast of Bali.

Approaches: Offshore approaches obstructed by coral and rock. Final approach through narrow Benoa Channel tortuous, and tidal current strong. Best navigability at slack water. Minimum fairway depth 19 feet.

Anchorage: Available outside 10-fathom line in open bight, but subject to heavy swell, even in calm weather.

S-E-C-R-E-T

Berthing Facilities: Two 75-foot jetties 60 feet apart give 210 feet of berthing length. Minimum alongside depth 19 feet. Construction of new jetty (dimensions unknown) and two warehouses completed in 1964.

Covered Storage: 24,000 square feet.

Port Clearance: By causeway for 3,000 yards, then by road 7 miles to Denpasar.

BIAK (SORIDO)
1°10'S - 136°03'E

General: Principal commercial port and naval base. On south side of Biak Island.

Approaches: Clear outside offshore reef. Two entrances through reef -- limiting depth of one 25 feet, of other 66 feet.

Anchorage: Available outside reef in 10 to 60 fathoms, inside reef in 7 to 13 fathoms. Coral bottom inside reef may foul anchors.

Berthing Facilities: Concrete-and-steel wharf 1,100 feet long, with minimum alongside depth of 28 feet.

Covered Storage: About 28,000 square feet.

Port Clearance: By road.

BITUNG
1°11'N - 124°34'E

General: Eventually to replace Manado as principal port of northern Celebes. On Lembah Strait, 30 miles east of Manado. Well sheltered at all seasons by Lembah Island, 1 mile across strait.

Approaches: No navigational difficulties in southern approach; depths in strait 9 to 24 fathoms.

Anchorage: Bottom suitable at 12 to 19 fathoms.

Berthing Facilities (see Figure 152): Concrete wharf 1,417 feet long, with alongside depth of 31 feet. Limiting length to berth alongside is 600 feet. Deep water extends close inshore, and at some points vessels can work cargoes directly to and from shore. Wharf being extended in 1965.

Covered Storage: 150,000 square feet, in several warehouses.

Port Clearance: By road. New road to Manado.

-250-

S-E-C-R-E-T



Figure 152. Port facilities at Bitung, Celebes.



Figure 153. Harbor construction at Tenau in Indonesian Timor. During bad weather, when waters off Kupang become untenable, most vessels anchor at Tenau. Probably 1964.

S-E-C-R-E-T

DILI
8°33'S - 125°34'E

General: Only significant port of Portuguese Timor. On north side of island.

Approaches: Clear, but may be rough during northwest monsoon (December through February).

Anchorage: Available in outer harbor in 13 to 25 fathoms for ships up to 500 feet long. Also available in inner harbor in 3 to 15 fathoms, but narrow entrances and numerous shoals limit use to smaller vessels. Lighters transfer cargoes from larger vessels to port.

Berthing Facilities: Concrete wharf 600 feet long, with alongside depth of 30 feet.

Covered Storage: About 25,000 square feet, in two warehouses.

Port Clearance: By road.

KUPANG
10°10'S - 123°35'E

General: Principal port of Indonesian Timor. On south side of Kupang Bay, at western end of island.

Approaches: Clear, but rough December through February.

Anchorage: Available several hundred yards offshore in 10 fathoms. Lighters transfer cargoes to port.

Berthing Facilities: Jetty 160 feet long, with alongside depth of 4 feet at low water, accommodates lighters. From December through February most vessels anchor at Tenau, 4 miles to west; work on new wharf started there in 1964; concrete deck slab completed June 1966. (see Figure 153).

Covered Storage: About 23,000 square feet.

Port Clearance: By road.

MAKASAR
5°07'S - 119°24'E

General: Major bunkering station, as well as principal outlet for products of region and transshipment port for Moluccas and lesser Sundas. On west coast of southwest peninsula of Celebes.

S-E-C-R-E-T

Approaches: Deep but encumbered with islands and coral reefs. Pilot required for final approach. Line of reefs 1/2 mile offshore gives partial protection from offshore winds (strongest December through February). Limiting depth in channel through reefs 46 feet.

Anchorage: Harbor bottom at 7 to 10 fathoms suitable for anchorage.

Berthing Facilities (see Figure 154): Concrete wharf with over 1 mile of berthing space and minimum alongside depth of 30 feet. Several smaller wharfs and piers.

Covered Storage: Over 1 million square feet of warehouse space.

Port Clearance: By road.

MANADO
1°30'N - 124°51'E

General: Principal port of northern Celebes. At mouth of Manado River, near eastern tip of northern peninsula.

Approaches: Deep and clear but seldom calm. Navigation often impossible, particularly from December through February.

Anchorage: Ships assigned anchorage berths several hundred feet off seawall near river entrance in about 30 fathoms of water. Many obstructions on bottom to foul anchor. Lighters transfer cargoes to port.

Berthing Facilities: Small basin on south bank of river mouth accommodates lighters. Concrete wharf 380 feet long, with shallow alongside depths, usable for only 3 hours before and 3 hours after high water. Five jetties for small craft.

Covered Storage: 40,000 square feet.

Port Clearance: By road and by Manado River for short distance.

MANOKWARI
0°52'S - 134°05'E

General: Commercial port on northeast coast of Vogelkop Peninsula, West New Guinea.

Approaches: Deep and clear.

S-E-C-R-E-T

Anchorage: Available in well-sheltered harbor in 11 to 19 fathoms.

Berthing Facilities: New concrete wharf with 380 feet of berthing space and minimum alongside depth of 14 feet.

Covered Storage: About 135,000 square feet.

Port Clearance: For short distances by road, into interior by trails.

MERAUKE
8°28'S - 140°20'E

General: Principal port of south coast of West New Guinea. At mouth of Merauke River, near border with Papua.

Approaches: Seaward approaches difficult. Shoals between river entrance and 6-fathom line, 14 miles offshore. Mudbanks extend 3-1/2 miles to seaward on both sides of river entrance; depths of mudbanks 3 feet at low water, 19 feet at high water.

Anchorage: Available in river in 3 to 4 fathoms, but mooring advisable as current is swift.

Berthing Facilities: L-head wharf, with 134-foot face and alongside depth of 18 feet. One jetty 131 feet long, with alongside depth of 4 feet.

Covered Storage: About 13,000 square feet.

Port Clearance: Into town by road; up Merauke River for 60 miles by vessels drawing 10 feet, for 150 miles by smaller craft.

SORONG
0°55'S - 131°15'E

General: Major bunkering station. Formerly ocean terminal for Klamono oilfields (no longer producing); now used only as small naval station and bunkering station. On west coast of Vogelkop Peninsula, West New Guinea.

Approaches: Deep and clear.

Anchorage: Available in harbor in 11 to 16 fathoms.

S-E-C-R-E-T

S-E-C-R-E-T

Berthing Facilities (see Figure 155): Wharf with alongside depth of 37 feet. Limiting length to berth alongside is 600 feet.

Covered Storage: 80,000 square feet.

Port Clearance: Into town by road, farther inland by local trails.

SUKARNAPURA (formerly HOLLANDIA)
2°32'S - 140°42'E

General: Principal port of West New Guinea and major bunkering station. At head of bay, near eastern end of north coast.

Approaches: Deep and unobstructed.

Anchorage: Available in bay at 22 to 25 fathoms.

Berthing Facilities: Four wharves -- two of timber, in poor condition; two of concrete and steel, in good condition. Limiting draft is 28 feet; limiting length to berth alongside is 600 feet. Two small-boat landings and one oiling jetty.

Covered Storage: Over 80,000 square feet.

Port Clearance: Into town by road, into interior by air or local trails.

TERNATE
0°48'N - 127°24'E

General: Principal port of northern Molucca Islands. On east coast of Ternate Island.

Approaches: Deep and clear.

Anchorage: Available in 11 fathoms.

Berthing Facilities (see Figures 156 and 157): Old T-head pier dismantled, and new pier (financed by USAID) completed in early 1966. Alongside depth 30 feet.

Covered Storage: 16,800 square feet, mostly in copra sheds.

Port Clearance: By road. A 2-foot-gauge rail line with pushcars leads to storage sheds.

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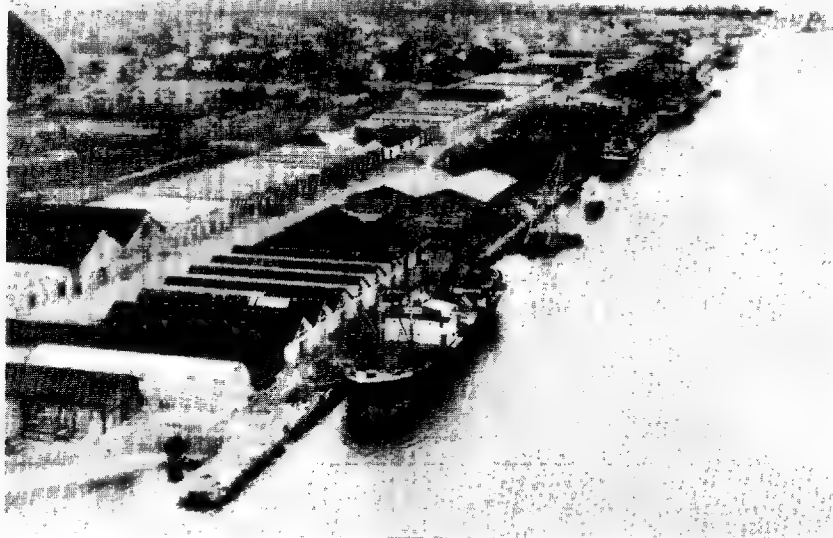


Figure 154. Port facilities at Makasar, Celebes.

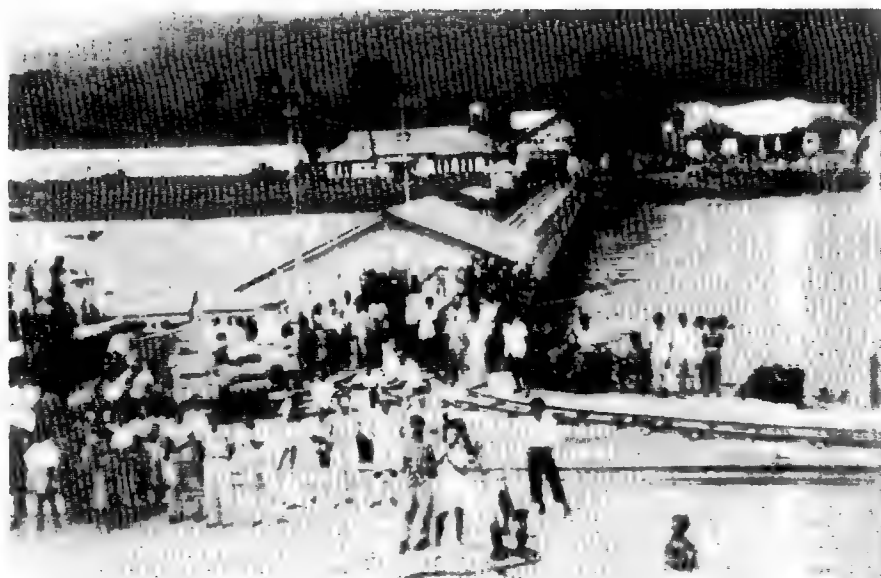


Figure 155. Docking and storage facilities in Sorong harbor, West New Guinea. 1962

-256-

S-E-C-R-E-T

S-E-C-R-E-T



Figures 156 & 157. Two views of pier in Ternate harbor. Expansion of port facilities was begun in 1964, after these photographs were taken.

S-E-C-R-E-T

S-E-C-R-E-T

D. Inland Waterways

In Celebes and in the Lesser Sunda and Molucca Islands rivers are too short and too swift to be of navigational significance. At best, they are navigable for very short distances from their mouths and only by small native craft. From May through September most rivers in the eastern Lesser Sunda Islands are dry and their beds are used to supplement the meager road and trail systems (see Figure 145).

In West New Guinea, on the other hand, rivers serve as the major transportation routes in all areas except the mountainous core where the extremely rapid currents make almost all rivers unnavigable by any type of craft (see Figure 158). In the southern lowland, sandbars and mudbanks across river entrances commonly block the passage of large vessels except at high tide. Currents of the southern rivers are generally slow, and vessels with drafts up to 12 feet can navigate the major rivers for about 100 miles inland from the coast; craft drawing 6 feet or less can continue for a considerable distance farther into the interior (see Figure 159). Because of the sharp bends and numerous shoals, vessels must travel slowly and with great care and experienced pilots are required. Rivers on the north coast and in the western peninsulas are navigable for considerably shorter distances. On some of the less steep mountain slopes, rivers may be navigable by small craft during dry weather or during periods of light rainfall; during heavy rains, however, currents become torrential and navigation is impossible.

E. Civil Air Transport

Because Indonesia is a country of widely separated islands, improvement of air transportation has been an important objective in the attempt to weld the islands into a cohesive political entity. Throughout most of Eastern Indonesia, however, only the major urban areas are served by airlines, and air transportation is not sufficiently developed to be a significant means of interisland movement of people or goods. Only on West New Guinea, where rugged terrain and great distances have precluded the development of a surface transportation network, do airplanes play a significant role in movement between the interior and the coasts. Airplanes are, in fact, the only means of supplying many of the remote areas in the interior highlands of West New Guinea. Where landing strips are unavailable, service is by parachute or free-fall supply drop.

S-E-C-R-E-T

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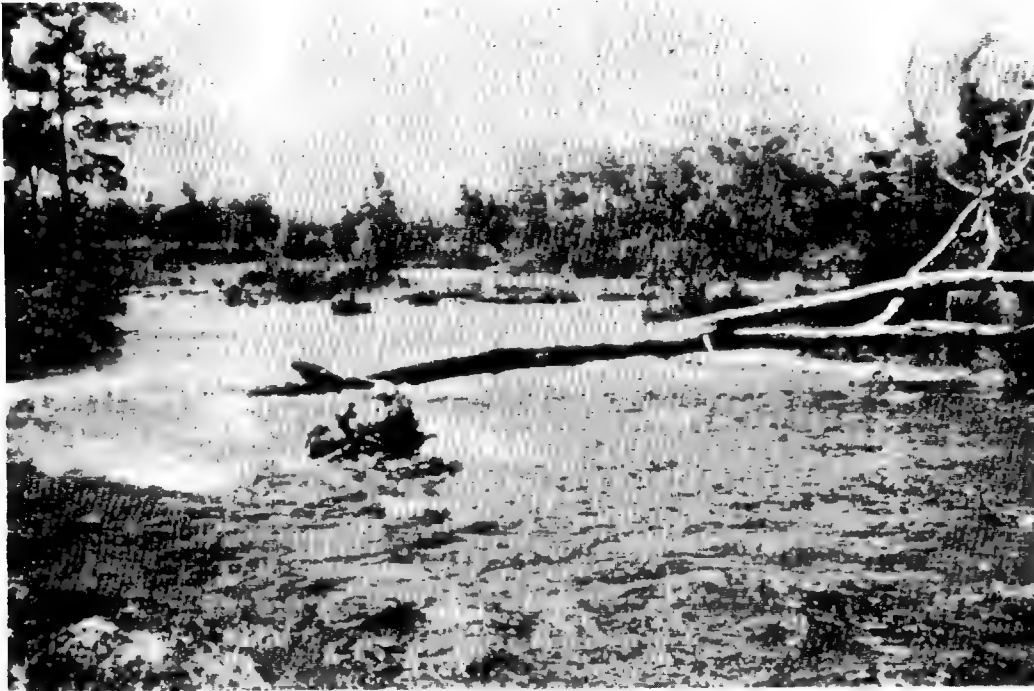


Figure 158. Typical river in highlands of West New Guinea. Fast current and fallen trees would make navigation hazardous, even by small craft. 1964



Figure 159. West New Guinea. Canoes on river in Southern Lowland. Rivers are navigable by small craft throughout Southern Lowland, but most currents in mountains are too swift for use by any type of craft. 1960

-259-

S-E-C-R-E-T

S-E-C-R-E-T

The major national carrier, GARUDA Indonesian Airways, as of January 1966 had a fleet of 3 Convair 990 jets, 3 Lockheed Electra 188C jets, 3 Convair 440's, 8 Convair 340's, and 18 Douglas DC-3's. It serves more than 50 points in Indonesia as well as major cities in eastern and southeastern Asia. Points in Eastern Indonesia served by GARUDA are Amboina, Ampenan (on Lombok), Biak, Denpasar (on Bali), Kupang, Makasar, Manado, Maumere (on Flores), Sukarnapura (formerly Hollandia), Sumbawa-besar, and Waingapu (on Sumba). Flights connect with either Djakarta or Surabaya.

Service is scheduled daily to Denpasar and Makasar, twice weekly to Biak and Manado, and weekly to the other points. In addition to the scheduled flights there are a few unscheduled flights to Gorontalo, Pitu (on Morotai), Tual (in the Kei Islands), and Dobo (in the Aru Islands) as well as feeder service connecting Biak with Sukarnapura. Convairs and DC-3's are used on all flights into Eastern Indonesia except to Biak, which is served by Lockheed Electras.

A subsidiary national carrier, Merpati Nusantara Airlines, operates a fleet of DC-3's, Beavers, and Pilatus Porter PC-6's. It provides feeder services from Biak to small or remote airfields on West New Guinea as well as from Java to points on Kalimantan.

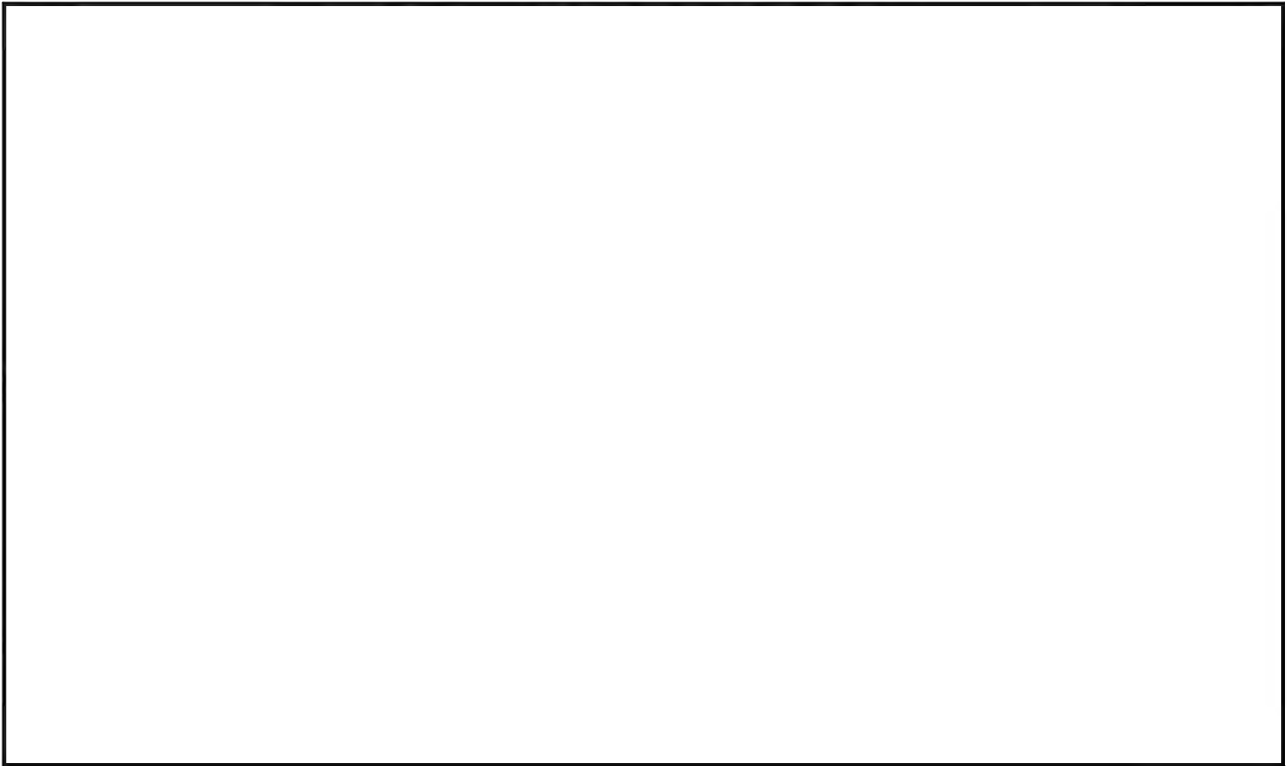
Substantial delays caused by bad weather, faulty equipment, or general inefficiency are frequently encountered on flights of both GARUDA Indonesian Airways and Merpati Nusantara Airlines. Maintenance is inadequate, and the condition of aircraft and other equipment, as well as the quality of service, is often notably deficient.

A third airline, Transportes Aereos de Timor (TAT), is owned by the Portuguese Government and serves Portuguese Timor. It operates three aircraft on weekly domestic and international schedules. Two de Havilland Doves connect Dili, the capital of Portuguese Timor, with Ocussi and Baucau (Vila Salazar). A Fokker F-27 Friendship flies between Baucau and Darwin, Australia. Darwin, in turn, is served by several international airlines.

25X1

S-E-C-R-E-T

25X1



- 261 -

S-E-C-R-E-T

S-E-C-R-E-T

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S-E-C-R-E-T

VIII. Telecommunications

A. Eastern Indonesia

1. Introduction

Telecommunications facilities in the Indonesian Archipelago east of Java are owned and operated by the Indonesian Government. Because of the numerous islands in this archipelago and the terrain and climate of the region, main reliance has been placed on point-to-point radio communications for interisland and intraisland telephone and telegraph services. Most of the larger islands have at least one radio communications station, but service is barely adequate for government needs and falls far short of the needs of the public.

2. Telephone and Telegraph Facilities and Services

a. Domestic

The combined network of telephone and telegraph facilities is operated by the Postal, Telegraph, and Telephone Service (PTT), an autonomous government agency under the authority of the Ministry of Land Communications. The principal communications centers in this network are Makasar and Manado in Celebes, Amboina in the Moluccas, Sukarnapura in West Irian, Kupang in Indonesian Timor, and Denpasar in Bali, all of which connect regional areas with Djakarta and/or Bandung in Java. There are automatic telephone exchanges of modest size in some of these larger centers, but most smaller towns that have telephone facilities use manually operated exchanges of small capacity, generally from 50 to 200 lines. TELEX (subscriber telegraph) service with Djakarta is available in most cities that serve as principal communications centers.

The only interurban wirelines are found on Bali, Flores, Timor, and parts of Celebes. A very-high-frequency (VHF) radio relay system connects the island of Bali with Lombok and Java. All other long-distance telephone and telegraph connections are by high-frequency (HF) point-to-point radio. (See Map 51161). Many of these HF radio facilities are old and maintenance is inadequate for the tropical climate of this area.

b. International

Most international telephone and telegraph connections are made via Bandung or Djakarta, but direct radiotelegraph circuits also are available to link Kupang with Vila Salazar; Makasar with Manila and Darwin; Biak with Darwin, Sydney, and

S-E-C-R-E-T

S-E-C-R-E-T

Manila; and Sukarnapura with Amsterdam, Sydney, Manila, and Port Moresby.

3. Broadcasting Facilities and Services

All radiobroadcasting stations, transmitting for the most part in the "tropical band" of 2,300 to 5,060 kilocycles, are part of a network operated by Radio Republic Indonesia (RRI) under the Ministry of Information. Programs originating from the national stations in Djakarta are incorporated in regional and local programs for rebroadcast. Makasar broadcasts the "Indonesian Insular Services" on a 20-kilowatt transmitter. The "Regional Services" of Sulawesi (Celebes), the Moluccas, the Lesser Sunda Islands, and West Irian are broadcast or relayed by transmitters located in 16 cities using powers of from 1 to 10 kilowatts. Most programs are in Bahasa Indonesia, although some programs from Denpasar are in Balinese and some local Makasar programs are in Buginese. The reception base for radiobroadcasting is limited. Less than 2 percent of the Indonesian population have radio receivers.

4. Specialized Networks

a. Army

HF radio facilities using manual Morse are the main means of communication for the Indonesian Army. Single-sideband HF radio facilities, however, are available at each Military Area Headquarters for voice communication with Djakarta on a 24-hour basis. On the local level, much of the army is still dependent on PTT facilities.

b. Republic of Indonesia National Police (RINP)

Modernized radiotelegraph facilities, with a radio-teleprinter potential, are now in operation at regional headquarters and major subregional sites of the RINP. These facilities are supplemented by administrative facilities of the PTT for communication with isolated villages.

c. Maritime

Principal coast stations are found at Amboina, Sukarnapura, Makasar, Manado, and Sorong. Navigational warnings and messages to mariners also can be transmitted by the coastal radiotelegraph stations of the PTT at most port cities.*

* Under construction for the Indonesian Navy is a separate multi-channel independent-sideband HF communications system that will supplement the Navy's existing HF Morse network.

S-E-C-R-E-T

S-E-C-R-E-T

d. Civil Air

Aeronautical radio facilities, under the Ministry of Air Communications, are controlled by the Department of Civil Aviation (DCA). Manual Morse HF radio circuits are used for communications between main airfields. A modern Aeronautical Fixed Telecommunications Network (AFTN) with radioteleprinter and speech channels is under construction and may be completed by the end of 1966. International aeronautical radio circuits link airports at Sukarnapura with Wewak in the Trust Territory of New Guinea ; Kupang with Darwin; and Biak with Port Moresby. Only major airfields have ground-to-air VHF facilities.

e. Private Radio Communications Facilities

Private HF radio communications stations owned by religious missions and by the Sorong Petroleum Company were in operation in West Irian before the departure of the Dutch administration and probably are still in existence.

25X1

S-E-C-R-E-T

S-E-C-R-E-T



Figure 160. Main PTT transmitter building ("Skyline") southwest of Sukarnapura, West Irian.



Figure 161. Overhead transmission lines running from Sukarnapura to the "Skyline" transmitter building.

-266-

S-E-C-R-E-T

S-E-C-R-E-T



Figure 162. PTT transmitter station on Batu Gantung road in southwest Amboina.



Figure 163. Military antenna farm on Biak.

-267-

S-E-C-R-E-T

S-E-C-R-E-T

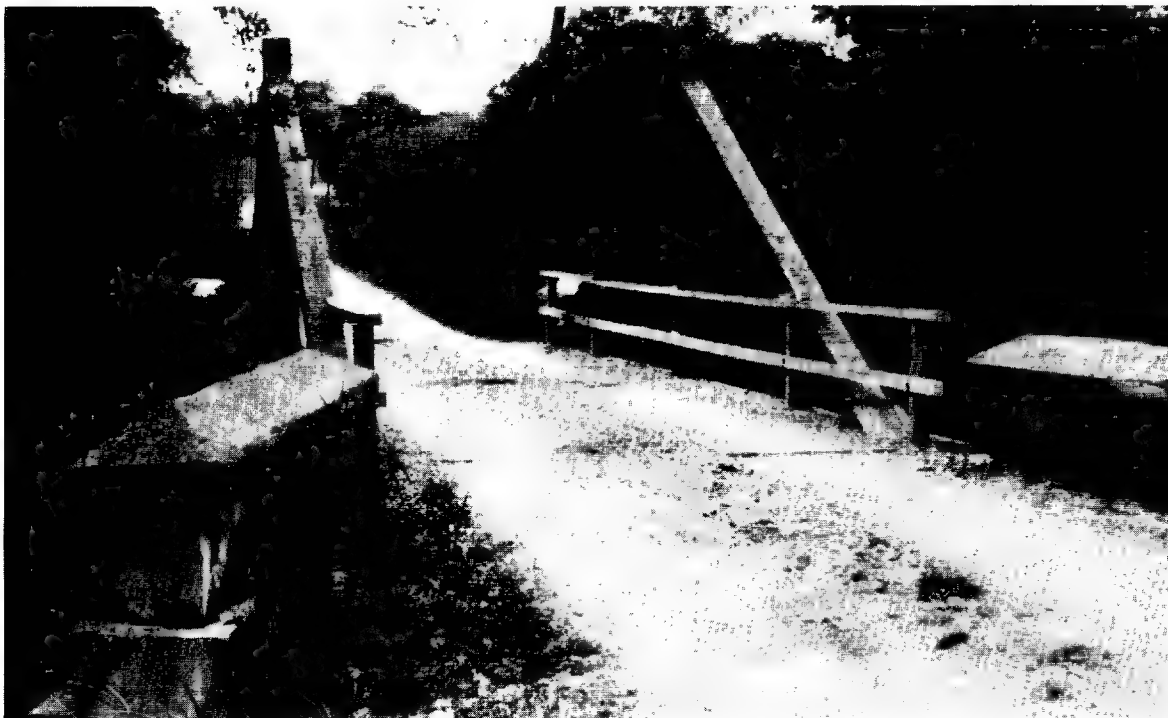


Figure 164. Open wireline along road 31 miles east of Kupang, Indonesian Timor.

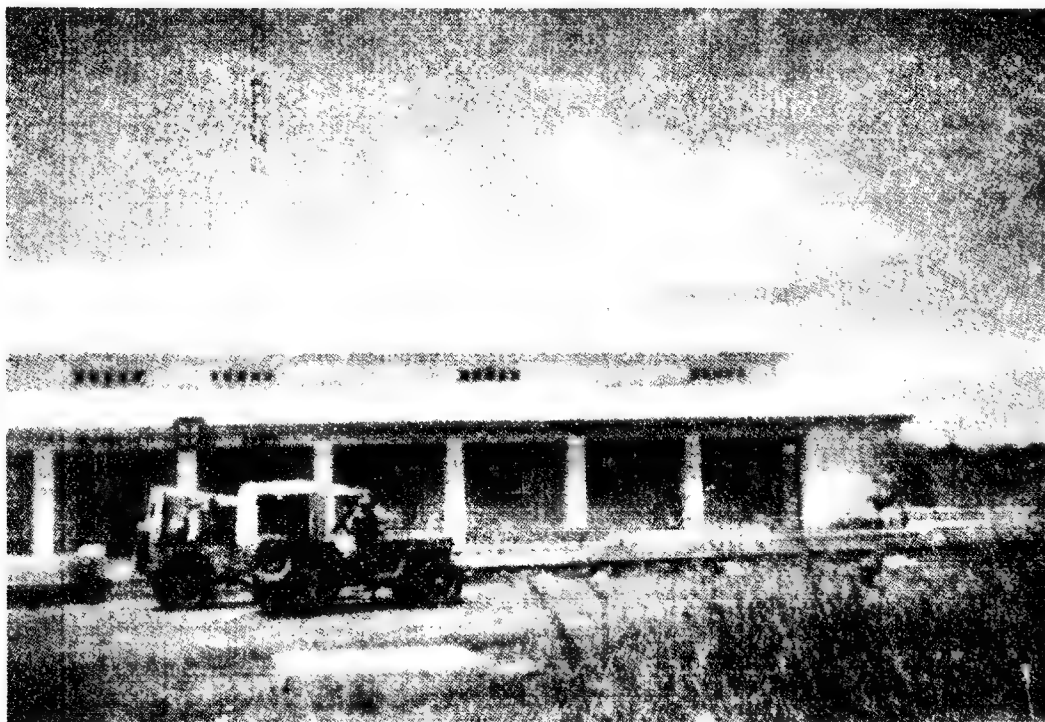


Figure 165. Radiotelegraph station at Vila Salazar, Portuguese Timor.

-268-

S-E-C-R-E-T

S-E-C-R-E-T

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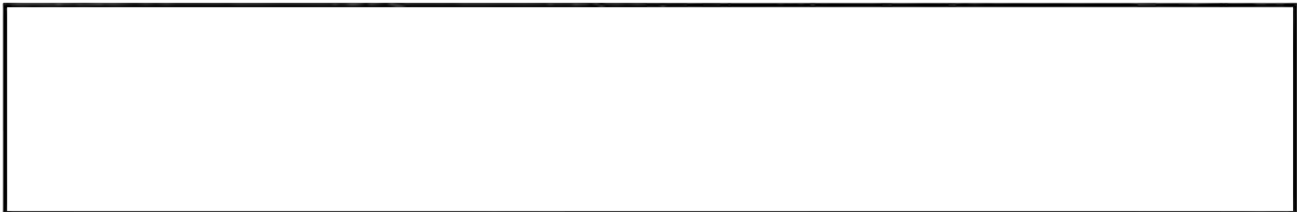
B. Portugese Timor

1. Telecommunications Facilities and Services

Telecommunications facilities in Portugese Timor are controlled by the colonial government. The primitive telephone and telegraph services on this island are inadequate for both public and private needs. Outside of Dili, which has telephone facilities for over 200 subscribers, towns that have telephone facilities use switchboards with only a 6 to 10 drop line capacity. The open wireline that connects these towns follows the main roads and is supplemented by several point-to-point radio stations. Vila Salazar (Baucau) and Dili, the principal towns, have numerous direct international HF radiotelegraph connections that include Australia, Portugese territories, and points within Indonesia. Airports near these two towns make use of ground-to-air VHF facilities and an aeronautical HF radiotelegraph link that is maintained between Vila Salazar and Darwin. A powerful coastal radiotelegraph station is also located near Vila Salazar. The single radiobroadcasting service, Radio Dili, is government operated and broadcasts programs in Portugese on a 1-kilowatt transmitter to about 1,000 radio receivers in Portugese Timor.

In addition to these facilities, military headquarters in Dili maintains a direct radiotelephone link with Lisbon and local HF radio connections with Vila de Manatuto, Vila Salazar, Beaco, Vila General Carmona (Aileu), Maubisse, Vila Armino Monteiro (Bobonaro), and Ocussi.

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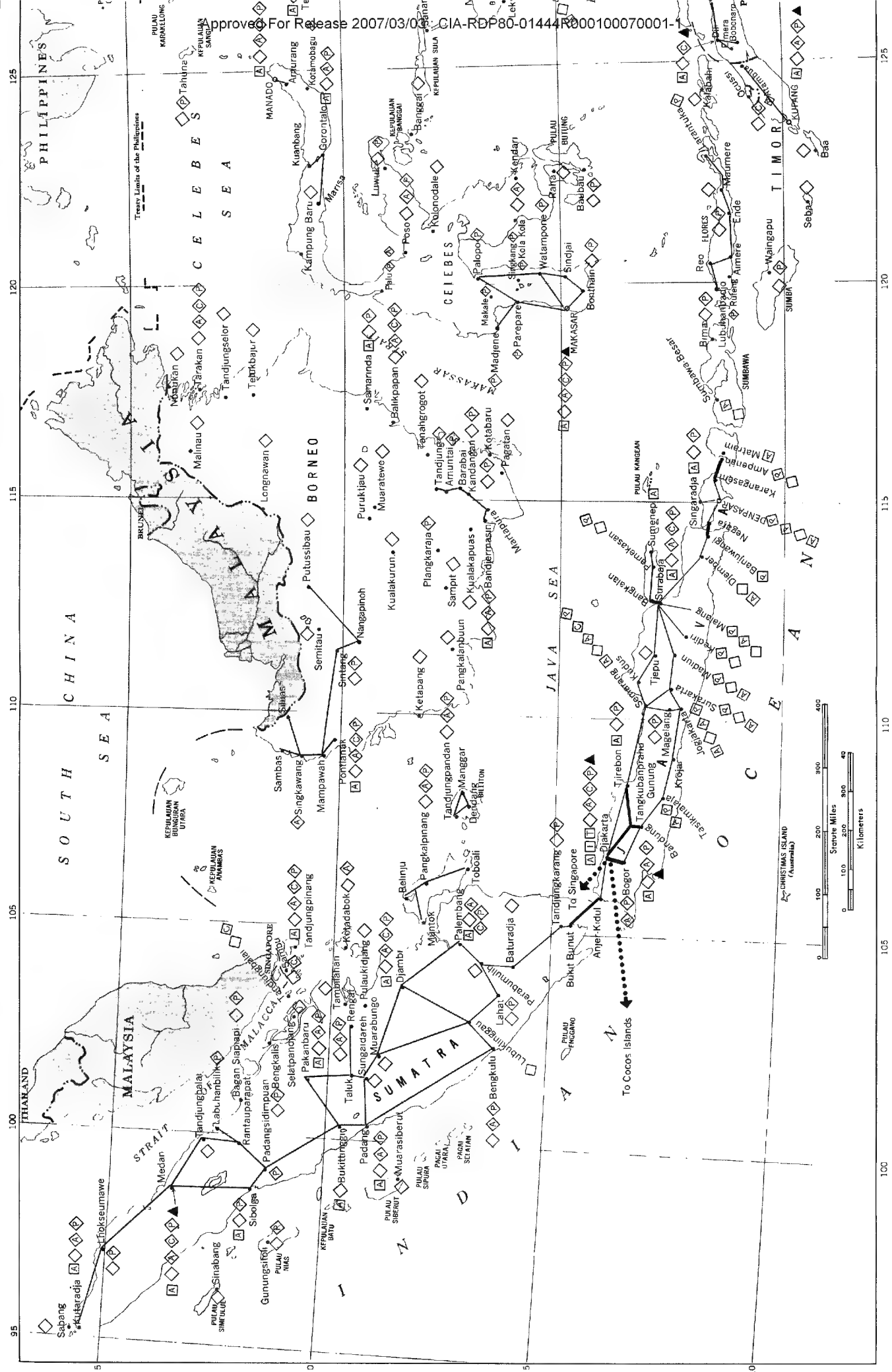
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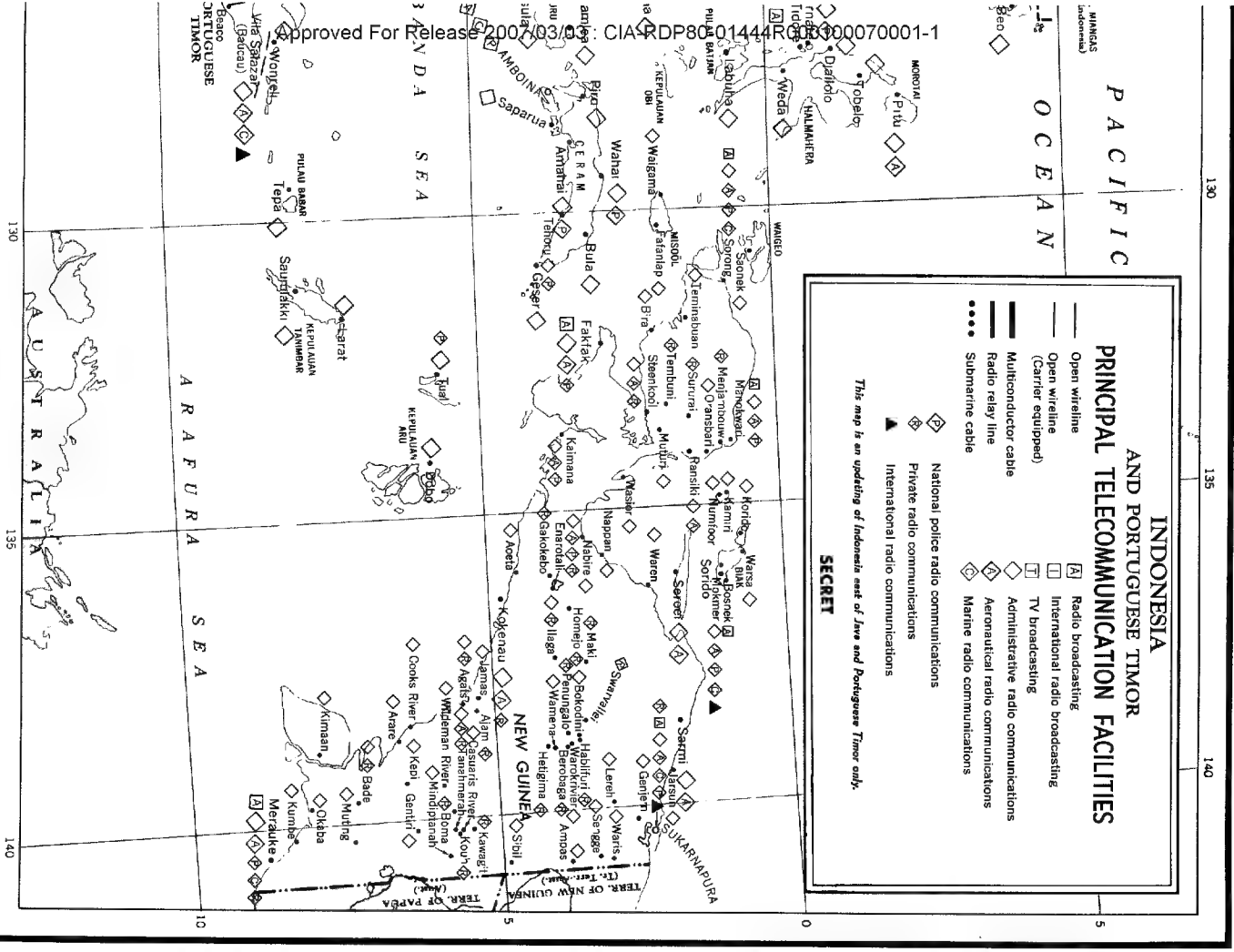
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IX. Military and Internal Security Forces

A. General

The Armed Forces of the Republic of Indonesia (Angkatan Bersendjata Republik Indonesia - ABRI), totaling approximately 346,200 men, are the largest in Southeast Asia, second in size only to those of India among the uncommitted nations of the world. Although the armed forces are well organized, well deployed, and well equipped to maintain internal security, they are not capable of waging all-out offensive war abroad, nor could they long withstand a sustained assault by an efficiently equipped and organized military force. They could, however, in the event of outside aggression, provide the nucleus for a guerrilla-type resistance augmented by the general population. Also, their capability for air and seaborne attack against specific targets in neighboring areas is increasing, largely as a result of military assistance extended by Communist countries.

The regular military forces consist of the Indonesian Ground Forces (Angkatan Darat Republik Indonesia - ADRI), numbering about 256,000 men; the Indonesian Navy (Angkatan Laut Republik Indonesia - ALRI) with about 42,800 personnel and a total of 250 ships and craft, including 31 principal combatant ships; and the Indonesian Air Force (Angkatan Udara Republik Indonesia - AURI), with approximately 22,400 men (465 trained pilots) and 513 aircraft including 165 jets. The regular forces are augmented by the 22,000-man Mobile Brigade and the 3,000-man Sea Police, which are subordinate to the Indonesian National Police Force (Angkatan Kepolisian Republik Indonesia - AKRI). Also under the national police is a small paramilitary element -- the air police -- on which little information is available.

The President of the Republic of Indonesia is the Supreme Commander of the Armed Forces and is vested by the constitution with the power to declare war and to proclaim a state of national emergency during which the provisions of martial law supplant or supplement civil authority. The chain of command passes directly from the president to the commanders of the army, navy, air force, and police. On matters affecting national security the president, who acts as chairman, may call on the National Security Council (Dewan Keamanan Nasional - DKN) which is charged with the determination of national defense policies. The council is composed of key cabinet ministers; the commanders of the military services and the police function as advisers. Coordination of the activities of the armed forces is the responsibility of the First Minister for Defense

S-E-C-R-E-T

S-E-C-R-E-T

and Security; the commanders of the army, navy, air force, and police act as his advisors and also command their respective services. The post is held by General Suharto, chairman of the 5-man cabinet presidium and concurrently commander of the army.

Indonesia has a manpower reserve of about 12 million males fit for military service; the average number of males reaching military age (18) annually is estimated at 775,000. The Indonesian military man is generally small in stature, but strong, wiry, and accustomed to physical hardship and long working hours. The average Indonesian is intelligent and quick to learn and is usually amenable to the requirements of military discipline. He tends to develop strong loyalties to individual leaders and for this reason the effectiveness of the unit depends to a large extent upon the degree of respect which those in command can elicit from their men. Experience acquired in the fight for independence from the Dutch, in combating internal dissidence since independence, and in military operations against West New Guinea and Malaysia has produced a courageous, capable military man particularly skilled in the techniques associated with small-scale military actions. However, he lacks military experience of a more sophisticated nature involving joint operations and coordination with supporting arms; training in these fields is being emphasized.

The military assets are offset by command problems, poor leadership, some ethnic and linguistic diversities, the low level of formal education, and inadequate troop training. Also, a lack of spare parts, a shortage of funds, technical and logistics deficiencies, and dependence on foreign sources for weapons and equipment will continue to be limiting factors in the realization of the ABRI's total military potential.

The performance of the armed forces in an internal security role is also greatly hampered by its diverse attitudes toward domestic issues. The armed services, particularly the army, have been in politics since the formation of the Republic and for many years have been the target of programs by President Sukarno and the Indonesian Communist Party to win its loyalties. Following the failure of the leftist coup in October 1965 and the emergence of the army under unified anti-Communist leadership as the dominant political force in Indonesia, the armed forces have undergone extensive changes. About 3,600 military personnel and civilian employees reportedly have been dismissed for involvement in the coup movement, and extensive weeding out of personnel suspected of pro-Communist sympathies is still

S-E-C-R-E-T

underway. The armed forces have been forced to move cautiously against those officers and units whose strong pro-Sukarno attitudes make them unresponsive to headquarters control. The army continues to be doubtful of the loyalty of some of its units in central and east Java, where pro-Sukarno and pro-Communist sympathies appear to coincide.

After nearly 6 months of internal factionalism, the air force leadership appeared to fall in line with the army with the appointment of Air Commodore Rusmin Nurjadin as commander in March 1966. In May he extensively reorganized the air force establishment to reduce its headquarters staff and remove from responsible positions many officers who were closely identified with officers involved in the coup attempt or who were involved in flagrant corruption.

The navy has had some top command changes but has not yet undergone extensive reorganization. The navy is still feeling the effects of a mutiny in February 1965 involving junior and middle-rank academy-trained officers who rose in protest against the alleged incompetence of their seniors and demanded reforms, including the replacement of the commander of the navy. The revolt was centered at the naval base of Surabaya, but it affected naval units throughout Indonesia, and an estimated 700 to 1,500 officers were implicated. Although the mutiny was quelled, its repercussions have had a long-term adverse effect on navy morale as well as on naval readiness and effectiveness. The navy's problems are also greatly complicated by the pro-Sukarno militancy of its marines (the Korps Komando - KKO), who continue to support leftist groups in east and central Java and to give haven within its ranks to former members of the PKI.

Only the police have retained their pre-October 1965 leadership, the army being less opposed to the present commander than to any alternative so far presented. The police hierarchy is a traditional preserve of Javanese aristocratic families and many of the officers likely to be weeded out in an army-supported purge are well connected with influential factions in central and east Java. Some elements of the paramilitary police unit, the Mobile Brigade, are strongly pro-Sukarno and could present potentially serious opposition to any moves against Sukarno supporters.

S-E-C-R-E-T

B. Army (ADRI)

Operational control is exercised by the Commander of the Army through 17 military Area Commands or KODAM's. KODAM's XIII, XIV, XV, XVI, and XVII are located in Eastern Indonesia, with headquarters at Manado, Makasar, Amboina, Denpasar, and Sukarnapura respectively. For administrative convenience, an Interregional Command (IRC) for these KODAM's (excluding XVI which reports directly to the army commander) is established at Makasar. The interregional commander is a deputy army commander and acts within his area as the representative of the ADRI commander. The KODAM commander exercises control over all troops in his area and is responsible as well for training, administrative and logistic support, and for some recruitment.

The Indonesian army is organized into 8 armored, 14 artillery, 3 antiaircraft, 10 combat engineer, and approximately 138 infantry battalions. The battalion is the largest tactical unit normally employed offensively, although the brigade (of which 24 have now been formed) is expected to replace the battalion as the major tactical unit. The Strategic Army Command (KOSTRAD), a mobile strike force organized on the brigade system, draws units from the KODAM's as required. The Parachute-Commando Regiment (RPKAD) consists of 3 parachute-commando battalions and is directly subordinate to army headquarters, but its battalions are also used in KODAM operations as required.

The army is equipped with a varied assortment of weapons from most European countries, the US, Japan, and the Communist Bloc. Equipment provided by the USSR includes small arms, heavy and light machine guns, 82mm mortars, 82mm and 107mm antitank recoilless guns, 122mm howitzers, antitank rocket launchers, 57mm AA guns, armored cars, amphibious tanks, and vehicles. Maintenance standards are poor, and there is a marked shortage of spare parts. The Javanese units are the most highly trained and best equipped of the Indonesian army. They would generally be more loyal to the central government than the local units, where loyalties tend to be tied to individual commanders.

Disposition of army units has been largely dependent upon operational requirements. The home stations of the infantry battalions are based roughly on the following formula: 50 percent in Java, 20 percent in Sumatra, 19 percent in Eastern Indonesia (which includes 3 percent in West New Guinea), 8 percent in Borneo, and 3 percent at the direct disposal of the army commander. Artillery and

S-E-C-R-E-T

antiaircraft artillery battalions and most of the armored battalions are normally concentrated in Java. Combat engineer battalions are based in accordance with local operational requirements.

The following battalions are in KODAM XIII and their personnel are indigenous to Celebes: 711, 712, and 713. Battalions 721 through 728 are in KODAM XIV and are also indigenous to Celebes. Battalions 731, 732, and 733 are under KODAM XV and are indigenous to the Moluccas. Battalions 741, 742, and 743 are under KODAM XVI and are indigenous to the Lesser Sundas. Battalions 641 and 642 are under KODAM XVII; the ethnic origins of their personnel are not known. Raider Bn 700 is indigenous to Eastern Indonesia. It has its headquarters and one company in KODAM XIV, and one company each in KODAM's XIII, XV, and XVI.

C. Air Force (AURI)

The AURI is headed by a Minister-Commander of the Air Force and has 14 operational squadrons, made up of 2 medium bomber, 2 light bomber, 2 fighter-interceptor, 1 fighter-bomber, 1 fighter-bomber/interceptor, 3 transport, 1 search and rescue, 1 helicopter, and 1 reconnaissance/VIP transport squadrons. All units are based on Java except for one light bomber squadron station in Celebes. The AURI inventory of 513 aircraft comprises 106 fighters (including 88 MIG's), 48 bombers (including 25 TU-16's), 75 transports, 56 helicopters, and 228 trainers and miscellaneous aircraft.

Indonesia is divided into five Air Area Commands (KOWILUD's). Each is organized to perform housekeeping functions and is responsible for maintaining all air bases located within its area of jurisdiction in a state of readiness enabling them to support detachments from operational units that may be assigned there. KOWILUD III includes Celebes, Moluccas, and West Irian; KOWILUD IV includes the lesser Sundas and central and east Java. The Paratroop Command is responsible for ground defense of air force bases; its personnel complement includes 1,500-2,500 paratroopers known as "Quick Reaction Troops" (PGT's).

Other elements of the air force include: 1) One surface-to-air missile (SA-2 GUIDELINE) complex, consisting of three operational firing battalions/sites and one technical battalion, for the defense of the Djakarta area; 2) an undetermined number of antiaircraft artillery units, equipped with light and medium artillery, located in defense of vulnerable

S-E-C-R-E-T

points, mainly on Java; and 3) a radar network, consisting mainly of Soviet BIG BAR/BIG MESH and TOKEN radars interspersed with Polish NYSA (radar) equipment, centered on Java but providing a point defense capability in parts of Sumatra, Borneo, and Celebes.

The AURI's tactical capability is satisfactory against undefended ground targets and in supporting ground operations against dissident forces. Its transport capability is good, compared with other Southeast Asian air forces, and can satisfy current requirements. Its air defense capability is improving as a result of deliveries of Soviet MIG-21 aircraft, antiaircraft guns, surface-to-air missiles, and radar; nevertheless, air defense is still limited. The TU-16's have given AURI a small strategic capability. AURI's greatest weakness is in logistics. There is a chronic lack of spare parts. Procurement and control of supplies are poorly managed and are complicated by the diverse origins of the aircraft. Also, limited interisland shipping, roads, and railroads seriously hamper logistic support.

D. Navy (ALRI)

The functions of the Minister/Commander of the Navy are comparable to the combined functions of the US Secretary of the Navy and the Chief of Naval Operations. He is assisted by three deputies: the First Deputy who heads the operations staff, the Second Deputy who heads the administrative and technical staff, and the Commandant of the Marine Corps. Deputy I, through the Commander of the Fleet, exercises command over the operating forces, which are composed of the Fleet Marine Force and Naval Air Arm plus seven commands -- destroyer/cruiser, submarine, patrol escort, mine warfare, motor torpedo boat, amphibious, and service force. Task force commands are formed by the temporary assignment of ships to "Operational Fleet Command" for special tasks. Also subordinate to Deputy I are the ten Maritime Area Commands (KODAMAR's) which are roughly comparable to US naval districts. Shore establishments are subordinate to the KODAMAR commanders but come under the broad technical and administrative supervision of the appropriate directorate or department. The only naval base of any consequence in Indonesia is that at Surabaya, all others being small naval stations. Naval headquarters is located in Djakarta. Five area commands have jurisdiction in Eastern Indonesia. KODAMAR IV, with headquarters at Surabaya, has jurisdiction over Bali and the western Lesser Sundas as well as parts of Java.

S-E-C-R-E-T

KODAMAR V, with headquarters at Makasar, controls the area of south and southeast Celebes, and various adjacent islands. KODAMAR VI, with headquarters at the Amboina Naval Station, controls the areas east of Celebes and north and east of Indonesian Timor, and includes the Moluccas and the eastern Lesser Sunda islands. KODAMAR VII, with headquarters at Biak, has jurisdiction over the West Irian coastal areas. KODAMAR X, with headquarters at Manado, has jurisdiction over north and central Celebes.

The navy has a small air arm which has primarily an antisubmarine warfare mission. The personnel strength of the naval air arm is 600; its inventory of 60 aircraft includes 28 IL-28s (18 of which were transferred from the Indonesian air force in late 1964), 3 Alouette helicopters, 13 MI-4 helicopters (for use in the ASW role or as transport helicopters), 13 Gannet aircraft (nonoperational), 2 C-47 and 2 HU-16 aircraft.

The 16,000-man semiautonomous Marine Corps (KKO), with main headquarters at Djakarta, is organized into a Fleet Marine Force and Force Troops Command, with a total combat strength of six rifle battalions. The missions of the KKO have never been officially stated. In practice, however, the KKO has been responsible for the development of amphibious doctrine, for the training and maintenance of forces capable of operating in support of naval operations or jointly with the army, and for the conduct of guard and base security duties at naval stations. If provided with adequate amphibious shipping and naval and air support, the KKO is considered capable of executing amphibious operations in the strength of three battalion landing teams. Within the limitations of its size, the corps is considered capable of employing three to four rifle battalions for all types of internal security missions.

Ship strength consists of 1 light cruiser (CL), 8 destroyers (DD), 10 destroyer escorts (DE), 12 submarines (SS), 2 escorts (PCE), 3 patrol escorts (PF), 25 submarine chasers (PC), 23 motor gunboats (PGM), 20 motor torpedo boats (PT), 12 guided-missile boats (PTG) (Komar-class), 6 fleet mine sweepers (MSF), 10 inshore mine sweepers (MSI), 10 large amphibious ships (LST and LSIL), 40 auxiliary ships, and 68 small amphibious/service craft.

Combat effectiveness is low despite an impressive inventory of ships and equipment, a growing naval air arm, and the development of a modest capability for mine and amphibious warfare. This situation is in part a result of the naval mutiny in February 1965 but is also attributable

S-E-C-R-E-T

to the heterogeneous collection of ships and equipment in the navy inventory, the poor and generally inexpert maintenance to which they are subjected, and the lack of technically trained personnel. In September 1966, a high naval officer stated that budgetary restrictions were forcing 50 percent of the fleet into inactive status, including destroyers and submarines. Official observers, however, doubt that more than 25 percent of the fleet units were operational at that time.

Because of the diversity of types and origins of vessels and equipment, as well as a poor supply service and inadequate communications facilities, the state of serviceability of sea police craft is low by Western standards. Marginal effectiveness and low efficiency also can be attributed to the absence of an effective training program and the consequent lack of sufficiently qualified deck and engineering officers to operate the vessels.

E. Police (AKRI)

1. General

The Indonesian National Police Force (AKRI) is headed by the Minister/Chief of Police who is directly responsible to the First Minister for Defense and Security. The headquarters of AKRI, called the Central Department, is located in Djakarta and directs 20 regional police areas and the Special Area of Djakarta (the metropolitan area of Djakarta). From the regional headquarters, authority passes through Resorts and Districts to the Sectors, which are the smallest units at the village or urban neighborhood level. The basic police unit is the 3- to 5-man patrol, which operates principally from the sector police station and receives its instructions from the sector police chief.

The routine police work of AKRI is performed by three branches. The General Service Police control traffic, investigate and prevent ordinary crimes, and patrol residential and commercial areas. The Criminal Research Service (DRK) is a specialized agency which deals with such crimes as fraud and forgery, polices price controls and currency regulations, controls narcotics, and handles offenses committed by or against foreign ships in Indonesian territorial waters. The Police Women's Corps deals with offenses by females, juvenile delinquents, and other offenses in the social or moral fields. The Force also contains four elements concerned with Indonesia's internal security problems. These include the Mobile Brigade, the Sea Police, and the Air Police, which are paramilitary units, and the Directorate of Intelligence and Security which collects

S-E-C-R-E-T

intelligence on dissident groups and extremist movements, apprehends subversives, and conducts surveillance of foreigners. Total AKRI strength is estimated to be about 133,000.

Police personnel are recruited from all ethnic groups, and training installations are located throughout Indonesia. The educational standards for officers are high and can usually be satisfied only by recruits from Java and, to a lesser extent, from Sumatra and Celebes. As a result, the senior officers, particularly those in the Central Department, are usually Javanese. Requirements for the General Service Police and for the paramilitary units appear to be identical, and recruits are assigned to either according to need. A substantial proportion of AKRI personnel have served in the Mobile Brigade at some time during their service and so have had some specialized training in infantry weapons and riot control. All police are armed, but the policy is to avoid the use of weapons in order to prevent a popular reaction against the police.

2. Mobile Brigade (BriMob)

The basic missions of the Mobile Brigade are to maintain internal security and to guard Indonesia's national borders. It has been used either alone or in conjunction with the police and the armed forces in the control of riots, combatting armed dissidents, assisting the victims of natural disasters, and in coping with the banditry and smuggling that is prevalent throughout Indonesia. In addition to its primary security functions, the brigade provides bodyguards for the president, cabinet members, and other government dignitaries.

The brigade, with a strength of 22,000, is organized into a ranger regiment and 37 infantry battalions and is headed by a Police High Commissioner, who is subordinate to the Minister/Chief of Police. The headquarters command is located in Djakarta and in effect directs the Mobile Brigade. This command can operate as an independent tactical unit, since it has an organic ranger battalion, weapons support company, engineer company, medical company, armored car company, and signal company. These units may be controlled operationally by the headquarters command or attached to the regional commands.

There are 12 regional commands, which can conduct operations or movements independently of, or in cooperation with, other police or armed forces units. A regional command has three components -- a headquarters; a combat element normally consisting of three infantry battalions; and the logistical, administrative, and combat support elements. Support units

S-E-C-R-E-T

S-E-C-R-E-T

of the regional command consist of signal, medical, ranger, and engineer platoons. There are four commands in Eastern Indonesia: IV Command Area, headquarters at Surabaya; IX Command Area, headquarters at Makasar; X Command Area, headquarters at Amboina; and XII Command Area, headquarters at Sukarnapura. These commands are not at full unit strength. There is a total of eight Mobile Brigade battalions in Eastern Indonesia.

The Mobile Brigade has been equipped largely by the United States. It has a variety of weapons primarily of British and US origin. The brigade is hampered by insufficient or obsolescent communications equipment and vehicles and by shortages of shipping needed to transport units and to support operations in the multi-island areas.

3. Sea Police (BKP)

The Sea Police Division of the National Police was established in 1951 to suppress smuggling and piracy and to transport police from island to island. The division has about 3,000 men and approximately 125 vessels that range from sea skiffs to patrol boats acquired from the United States, Japan, Italy, West Germany, and the Netherlands. The national headquarters of the sea police and its main base are near Djakarta at Tandjungpriok. The headquarters has no authority over the craft or sea police in the provinces which are controlled by the provincial police commanders.

4. Air Police

Little or no information is available on the third paramilitary force, the small air police organization.

S-E-C-R-E-T

S-E-C-R-E-T

F. Small Arms Found in Indonesia1. Common Small Arms and Quantities

<u>Weapon Designation</u>	<u>Caliber</u>	<u>Reported Quantity*</u>	<u>Country of Manufacture</u>
Pistol, TT	7.62mm	10,850	USSR
Pistol, PM	9mm	750	USSR
Carbine, SKS	7.62mm	12,500	USSR
Rifle, Sniper	7.62mm	500	USSR
Assault Rifle, AK	7.62mm	24,120	USSR
LMG, RPD	7.62mm	3,845	USSR
HMG, DShK	12.7mm	780	USSR
HMG, SG-43	7.62mm	493	USSR
Pistol, M-52	7.62mm	480	Czechoslovakia
Rifle, M-52	7.62mm	2,000	Czechoslovakia
Rifle, AR-10	7.62mm	1,200	United States
Rifle, M-1	.30 cal.	67,113	United States
SMG, Madsen, M-1950	9mm	11,000	Denmark
MG, Madsen	7.62mm	5,280	Denmark
Rifle, FN FAL	7.62mm	20,000	Belgium
Rifle, BM-59	.30 cal.	3,000	Italy
SMG, Lanchester	9mm	2,000	United Kingdom
SMG, Sten	9mm	2,270	United Kingdom
LMG, Bren	.303 cal.	800	United Kingdom
Rifle, Assault, G-3	7.62mm	15,000	West Germany

*The actual quantity may be considerably larger than indicated as not all small arms shipments are reported.

S-E-C-R-E-T

2. Other Small Arms (Quantity unknown)

<u>Weapon Designation</u>	<u>Caliber</u>	<u>Country of Manufacture</u>
Pistol, Colt, M1911	.45 cal.	United States
Carbine, M1	.30 cal.	United States
Carbine, M2	.30 cal.	United States
Rifle, Sniper, M1C	.30 cal.	United States
Rifle, Browning Auto., M1918	.30 cal.	United States
SMG, Thompson, M1928	.45 cal.	United States
SMG, M1A1	.45 cal.	United States
LMG, Browning	.30 cal.	United States
MG, Browning, M1917	.30 cal.	United States
MG, Browning, M1918	.30 cal.	United States
MG, Browning, M2	.50 cal.	United States
SMG, M-24 & M-26	7.62mm	Czechoslovakia
LMG, M-52	7.62mm	Czechoslovakia
HMG, Type 54	12.7mm	Communist China
SMG, Port Said	9mm	Egypt
Rifle, Lee-Enfield, SMLE	.303 cal.	United Kingdom
Rifle, Lee-Enfield, No 4 Mk 1	.303 cal.	United Kingdom
MG, Vickers	.303 cal.	United Kingdom
Rifle, Mannlicher	6.5mm	Germany
Rifle, Kar98k	7.92mm	Germany
SMG, Schmeisser	9mm	Germany

S-E-C-R-E-T

<u>Weapon Designation</u>	<u>Caliber</u>	<u>Country of Manufacture</u>
SMG, Owen	9mm	Australia
SMG, Beretta	9mm	Italy
Pistol, Browning Hi- Power	9mm	Belgium
Rifle, FN (SAFN) M1949	.30 cal.	Belgium
LMG, Madsen	6.5mm & 8mm	Denmark
SMG, Madsen, M-53	9mm	Denmark
MG, Madsen/Saetter, Mk11	7.62mm	Denmark
Rifle, Arisaka	6.5mm	Japan

G. Portuguese Timor

Portugal maintains a garrison force of about 1,800 Portuguese troops in Timor, supplemented by 3,000 native troops. All are under the command of Portuguese officers. An additional 20,000 natives, officered by Timorese, have received 3-month military training as a result of conscription. The Portuguese troops are said to suffer poor morale, and the local conscripts are of doubtful quality. There are no naval or air forces. Little information is available on the police force. About 1,000 locally-enlisted men are reported to be organized in both the enclave of Ocussi and the eastern part of the province.

S-E-C-R-E-T

S-E-C-R-E-T

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S-E-C-R-E-T

S-E-C-R-E-T

X. Survival Factors

A. Food and Water

1. Plants

Throughout most of Eastern Indonesia a wide variety of edible plants offers the traveler living off the land an abundant source of food. Wild fruits, including plantains and bananas, bignay, durian, rambutan, breadfruit, and mangoes, are commonly found in forests and near villages (see Figures 166 through 168). All grass seeds are edible and their grains can be eaten raw, parched, or pounded into flour after roasting. The young unopened buds of wild sugarcane may be cooked and eaten; the underground stems and roots and the heart of the young shoots may be peeled and eaten raw. The tender young shoots of bamboo provide an excellent supply of food (see Figure 169).

Palms are a good source of food. The coconut palm and nipa palm, common in coastal areas, have relatively soft-shelled fruits that can be eaten (see Figures 170 and 171). The fruits of most other palms are unsuitable, however, because they are either too hard to break or they contain irritating substances that make them inedible. The terminal bud, often called the palm cabbage, of most palms is edible either cooked or raw. The soft interior part of the trunks of many palms such as the rattan, sugar, and sago may be sliced, boiled, or roasted and then chewed until the large quantity of starch it contains has been removed (see Figures 172 through 174). It is best to remove the soft inner part of the trunk of a mature palm before it begins to produce flowers and to dissolve it in water and allow the starch to settle in a receptacle.

The inner bark and terminal buds of many trees other than palms also are edible, as are fern fronds and stalks (see Figure 175). Moist forested areas contain a number of plants that have edible roots and tubers, including arrowroot, cassava, taro, and yam (see Figures 176 through 178). None should be eaten raw because many contain toxic materials. Cassava, for instance, contains cyanide. All roots and tubers should be cut into thin slices, crushed, and cooked in several changes of water before being eaten.

Native gardens normally contain rice, sweet potatoes, corn, or sago. Wetland rice is the most common subsistence crop for most of the population of Eastern Indonesia, but maize and sago are more common in the southern Moluccas and Eastern Lesser Sundas, and cassava, sago, and sweet potatoes

S-E-C-R-E-T

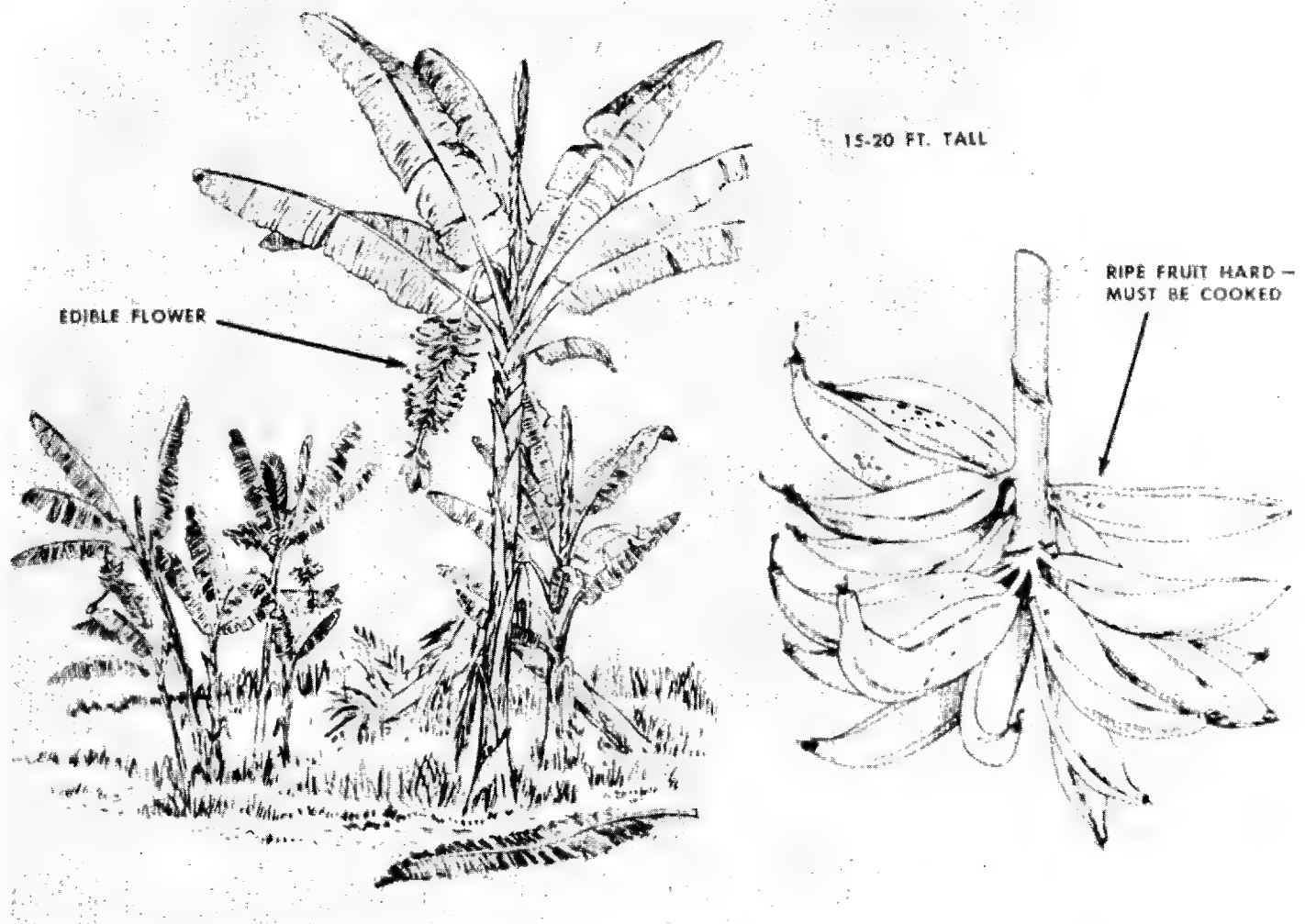


Figure 166. Plantains. Plantains are cultivated in Eastern Indonesia but also grow wild in rain forests from sea level up to 4,000 feet. They never soften and must be roasted or boiled. Roasted plantains are very dry and mealy. Large coarse ones can be dried when green and later boiled as a vegetable. The dried fruit can also be made into a meal, which has the color and consistency of graham flour and which can be used to make porridge or round flat cakes for frying. Bananas closely resemble plantains but are more nourishing. They can be kept for a long time by being sliced, dried in the sun, and thoroughly smoked over a fire.

S-E-C-R-E-T

S-E-C-R-E-T

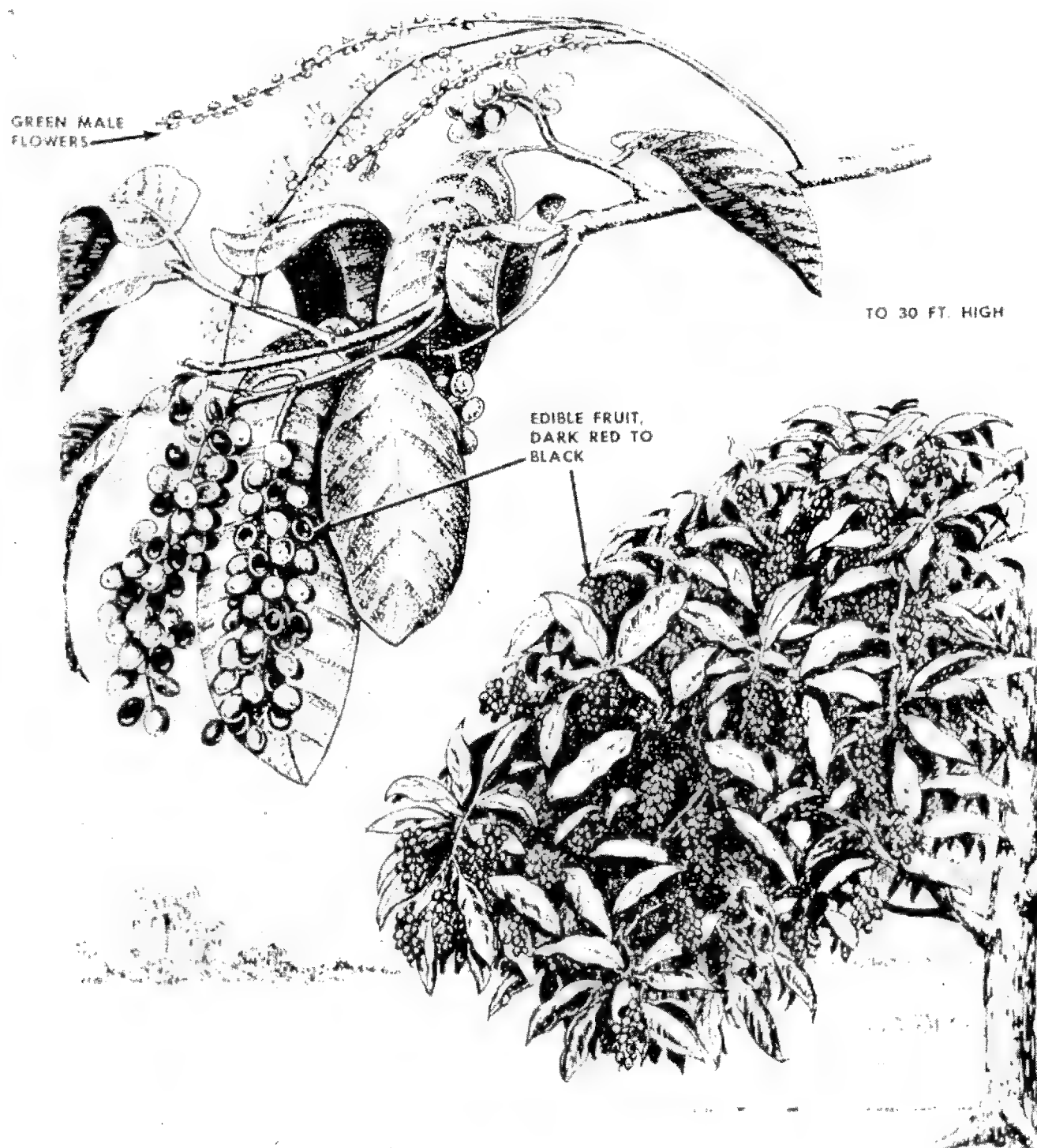


Figure 167. Bignay. The bignay is frequently cultivated but also grows wild in open places and in secondary forests. The fleshy currant-like fruit can be eaten raw.

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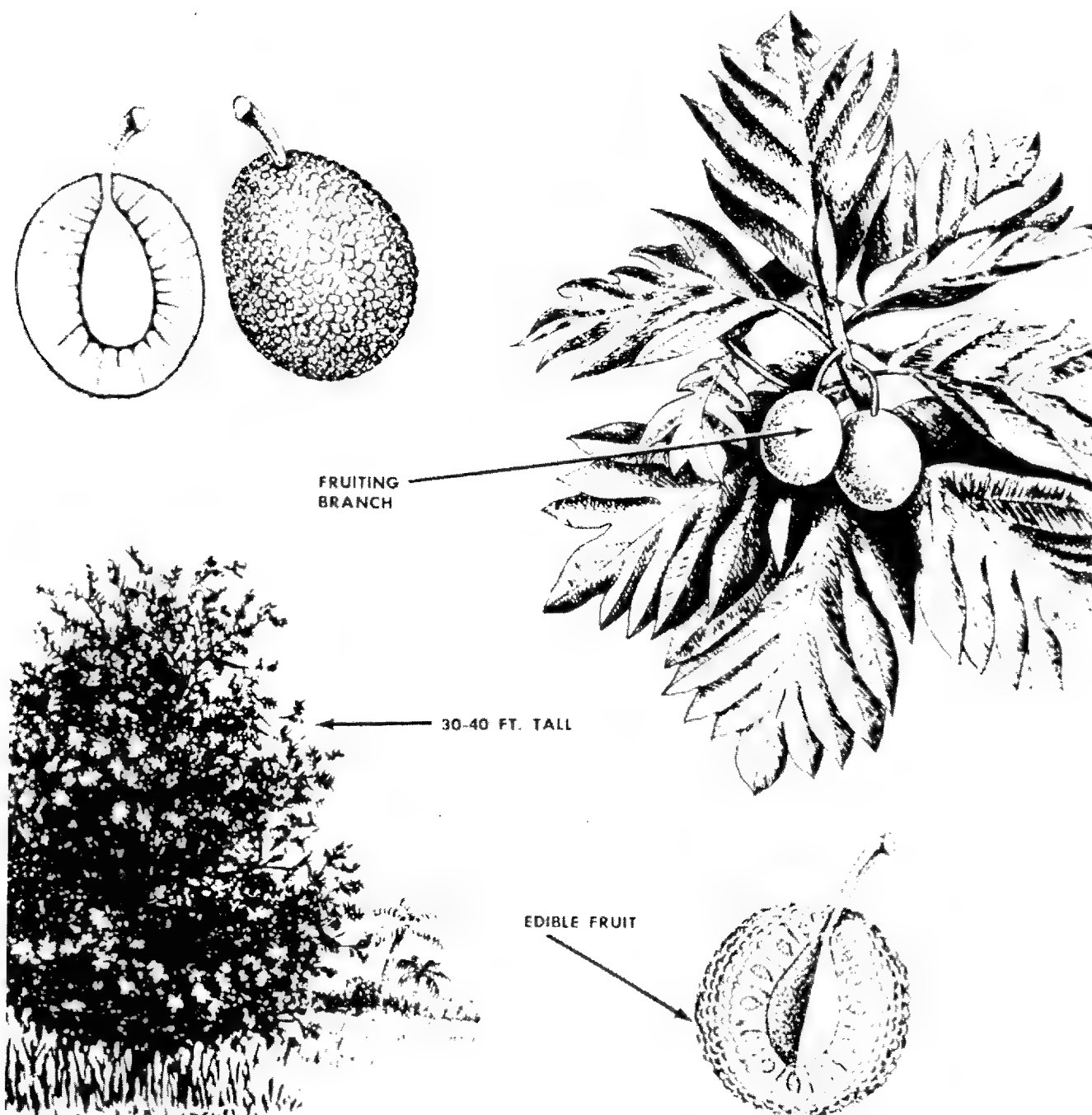


Figure 168. Breadfruit. Breadfruit trees are frequently found near human habitation. Ripe breadfruits can be eaten raw, but they should be scraped lightly with a shell to remove the skin.

S-E-C-R-E-T

S-E-C-R-E-T

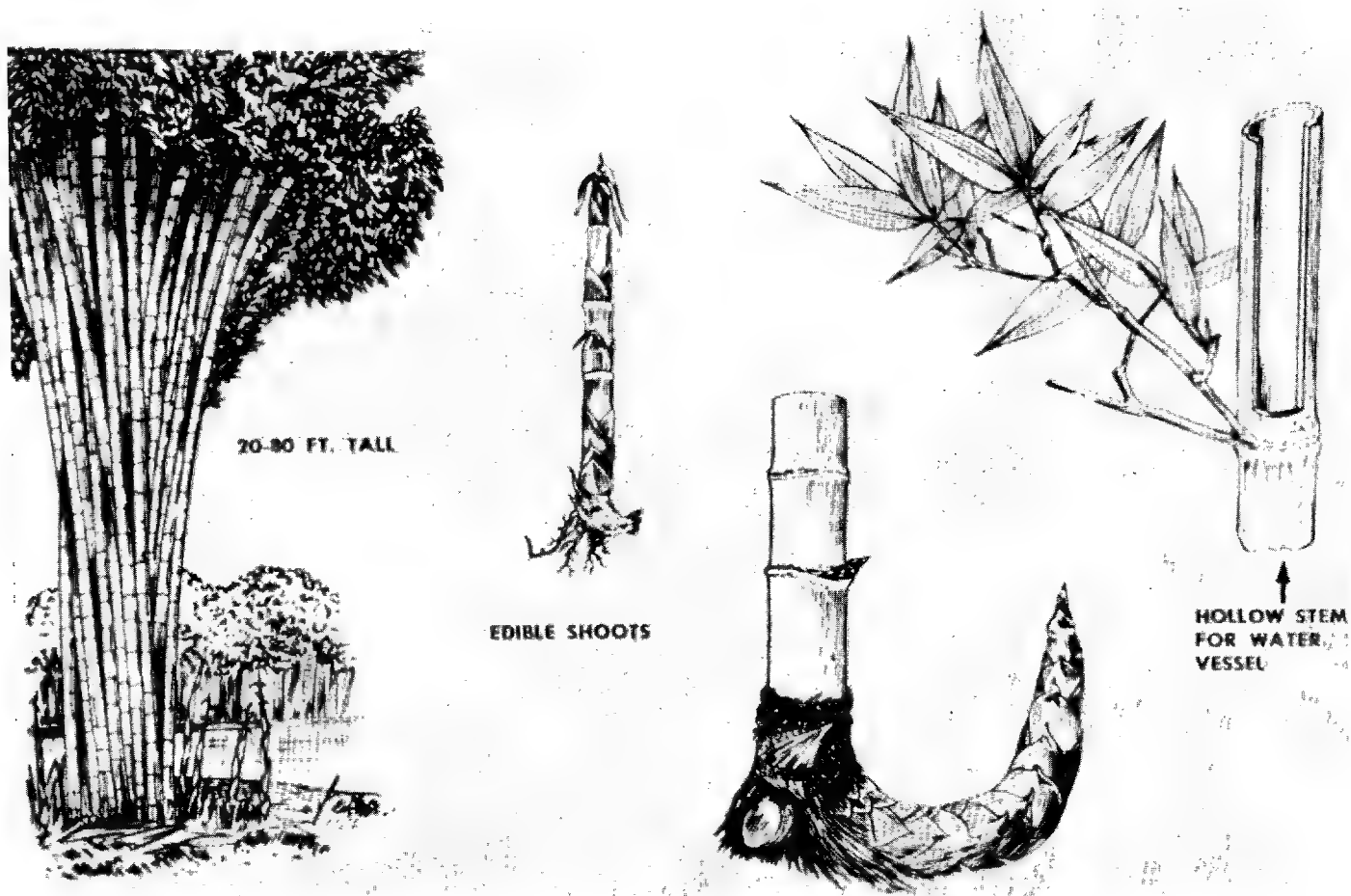


Figure 169. Bamboo. Bamboo is found in clearings, around abandoned gardens, in the forest, and along rivers and streams. Young bamboo shoots appear in quantity during and immediately following rains. They are edible; the tough outer sheath should be removed before cooking. The seed grain of the flowering bamboo may also be eaten if pulverized, mixed with a little water, and pressed into cakes. It may be boiled and eaten as one would eat rice.

S-E-C-R-E-T

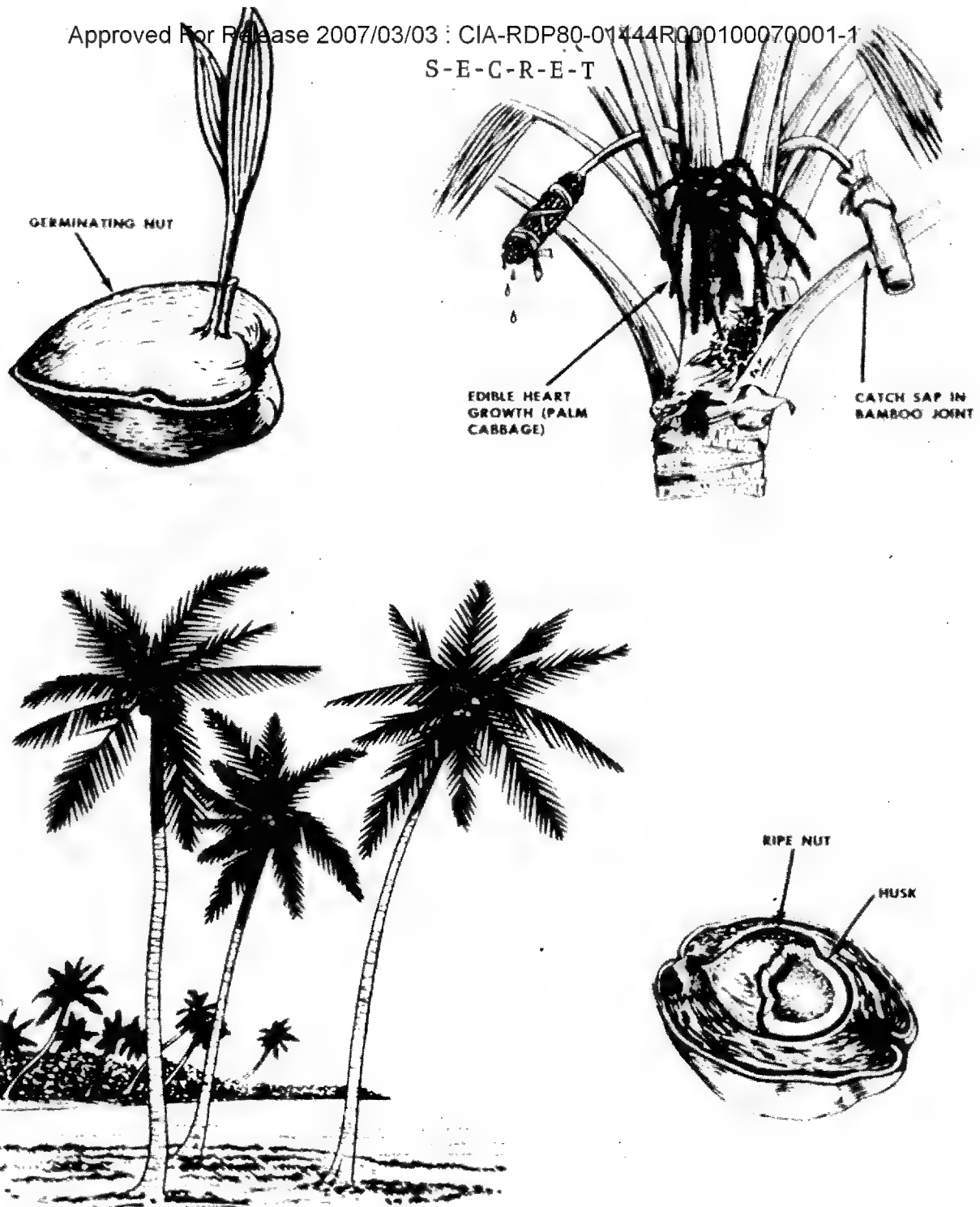


Figure 170. Coconut. The coconut palm is widely cultivated in Eastern Indonesia but also grows wild near seashores and is occasionally found some distance inland. Edible parts include the palm cabbage, the flesh of the nut, the sprouts of germinating nuts, and the spongy material inside the nut. The fluid from green nuts may be drunk in quantity without ill effect, but the fluid from mature nuts should be allowed to stand until a harmful oil settles out. Coconut oil, obtained by exposing the grated coconut meat to slow heat, can be used as a cooking oil, an insect repellent, and a preventative of salt-water sores.

S-E-C-R-E-T

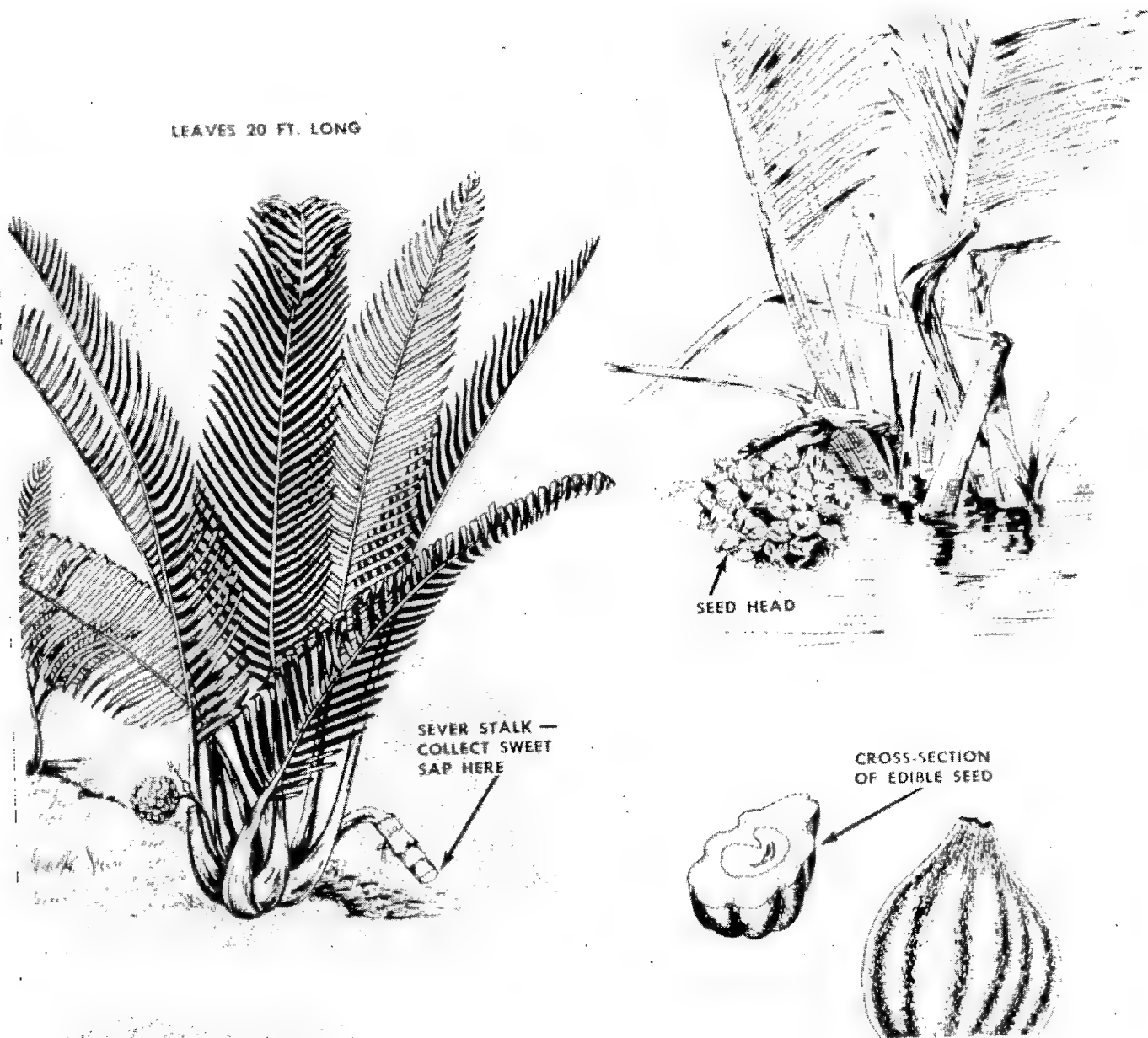


Figure 171. Nipa palm. The nipa palm grows only along tidal streams and bordering mangrove swamps within the influence of brackish or salt water. Potable sweet sap may be obtained by bruising a stalk that is carrying a fruit. The stalk should be cut through above the bruise and a bamboo joint or similar vessel attached to catch the juice that runs out the cut end. The seeds and cabbage of this palm also are edible.

S-E-C-R-E-T

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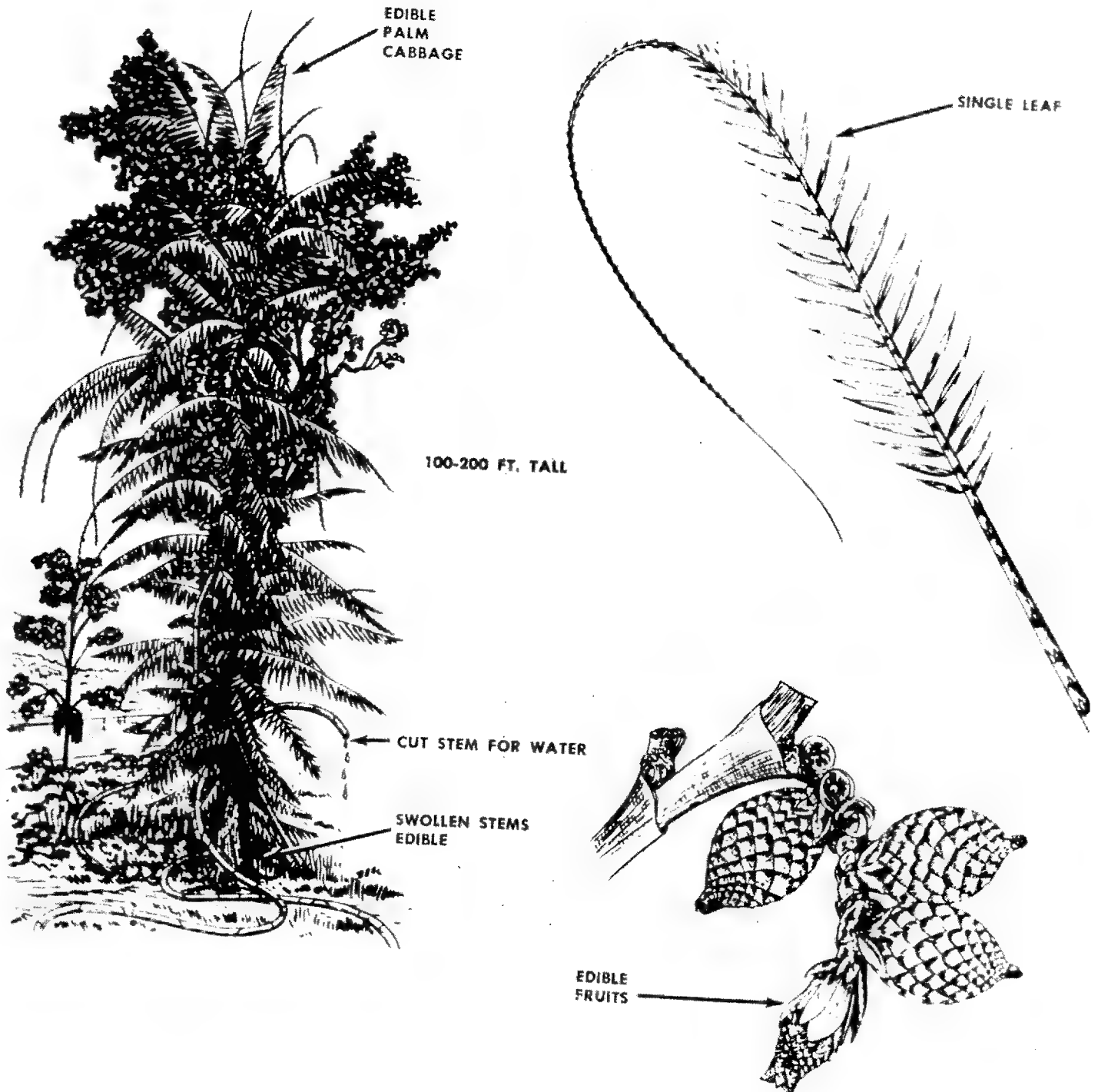


Figure 172. Rattan palm. Climbing palms grow chiefly in the rain forest. The slightly swollen basal part just above the surface of the ground contains a considerable amount of starch, which may be roasted and eaten. The seeds of some species are surrounded by an edible gelatinous pulp. It is possible to obtain large quantities of drinking water by severing the long stems of rattan palms.

-292-

S-E-C-R-E-T

S-E-C-R-E-T

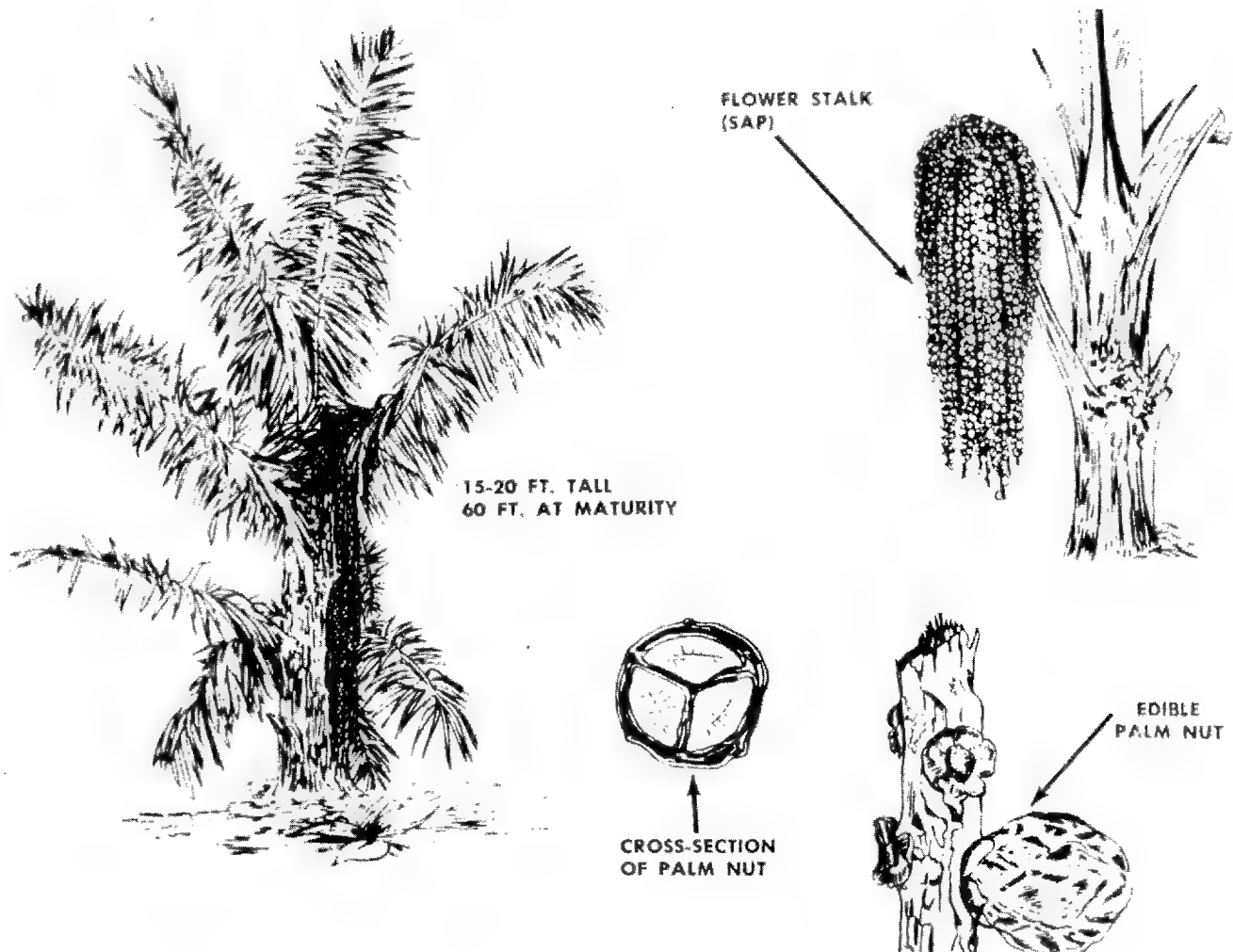


Figure 173. Sugar palm. The sugar palm is cultivated near villages but also grows wild in forested areas. It produces edible starch, sap, sugar, palm cabbage, and nuts. To tap the sugar palm a flowering stalk should be beaten with a stick for a short period each day for 2 or 3 weeks, as wounded tissue stimulates the flow of sap to the wounded part of the palm. A thin slice should be removed from the wounded end of the stalk once or twice a day during the period of sap flow to maintain a steady flow of sap. The stalk can be cut off at the base of the flowering portion, and the exuding sap can be caught in a hollow joint of bamboo.

S-E-C-R-E-T

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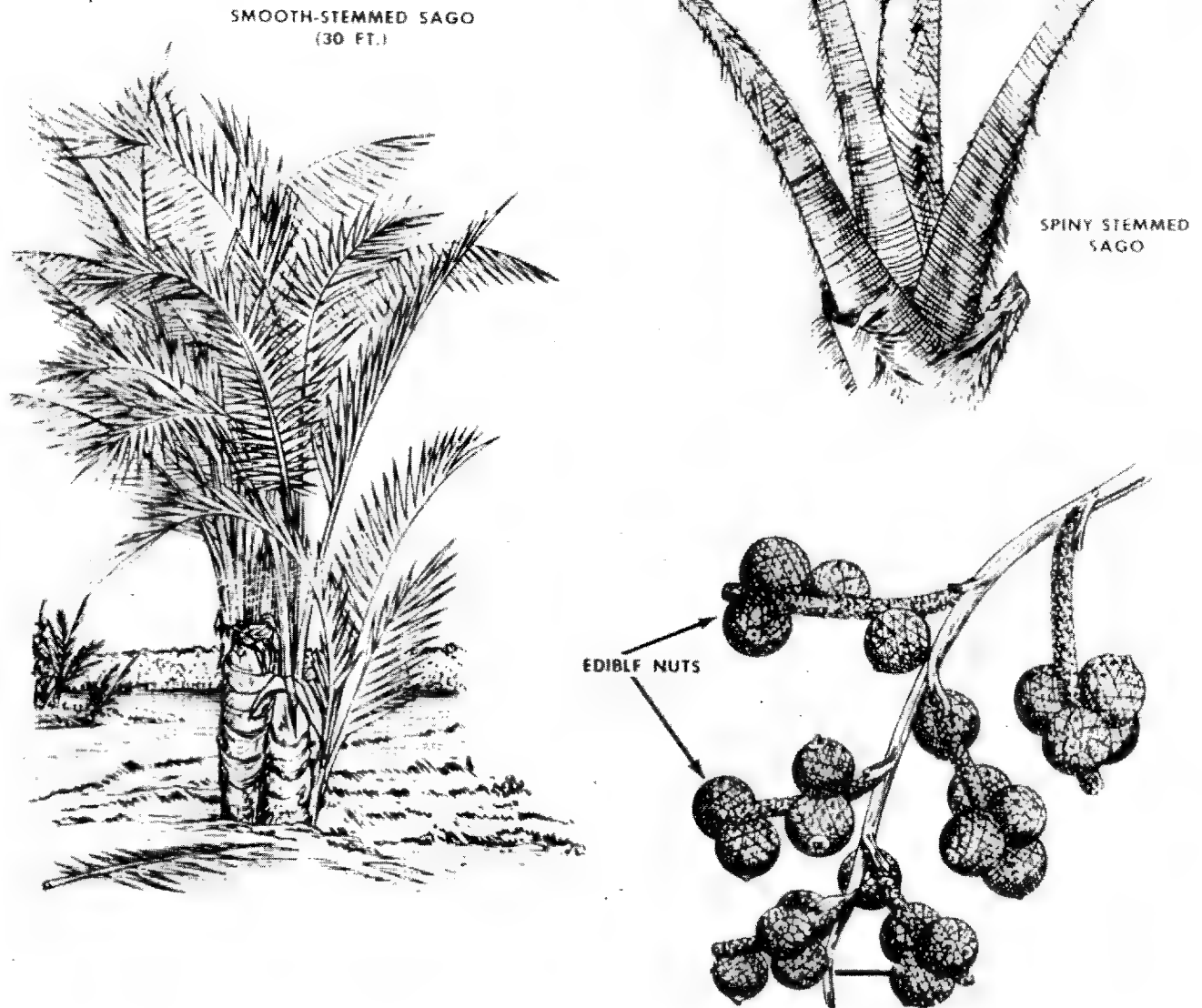


Figure 174. Sago palm. Sago palm is common in moist lowlands, especially near bodies of water. One sago palm trunk cut just prior to flowering time will yield enough starch to sustain a man for a year. Starch may be extracted from the trunk by cutting away the bark lengthwise from the lower half of the tree and pounding the soft, white inner parts as fine as possible. This fine pulp should be kneaded in water and strained through a coarse cloth; the escaping water will carry the edible starch into a container and the fine, white sago will soon settle out. Pour off the water after several washings. Knead the remaining water from the sago and roll the sago into balls and dry them over a fire or else in the sun. After this it may be wrapped in palm leaves and kept indefinitely.

The core of the upper part of the trunk does not yield sago, but it may be roasted in lumps over an open fire and eaten. Young sago nuts, growing shoots, and palm cabbage can be eaten.

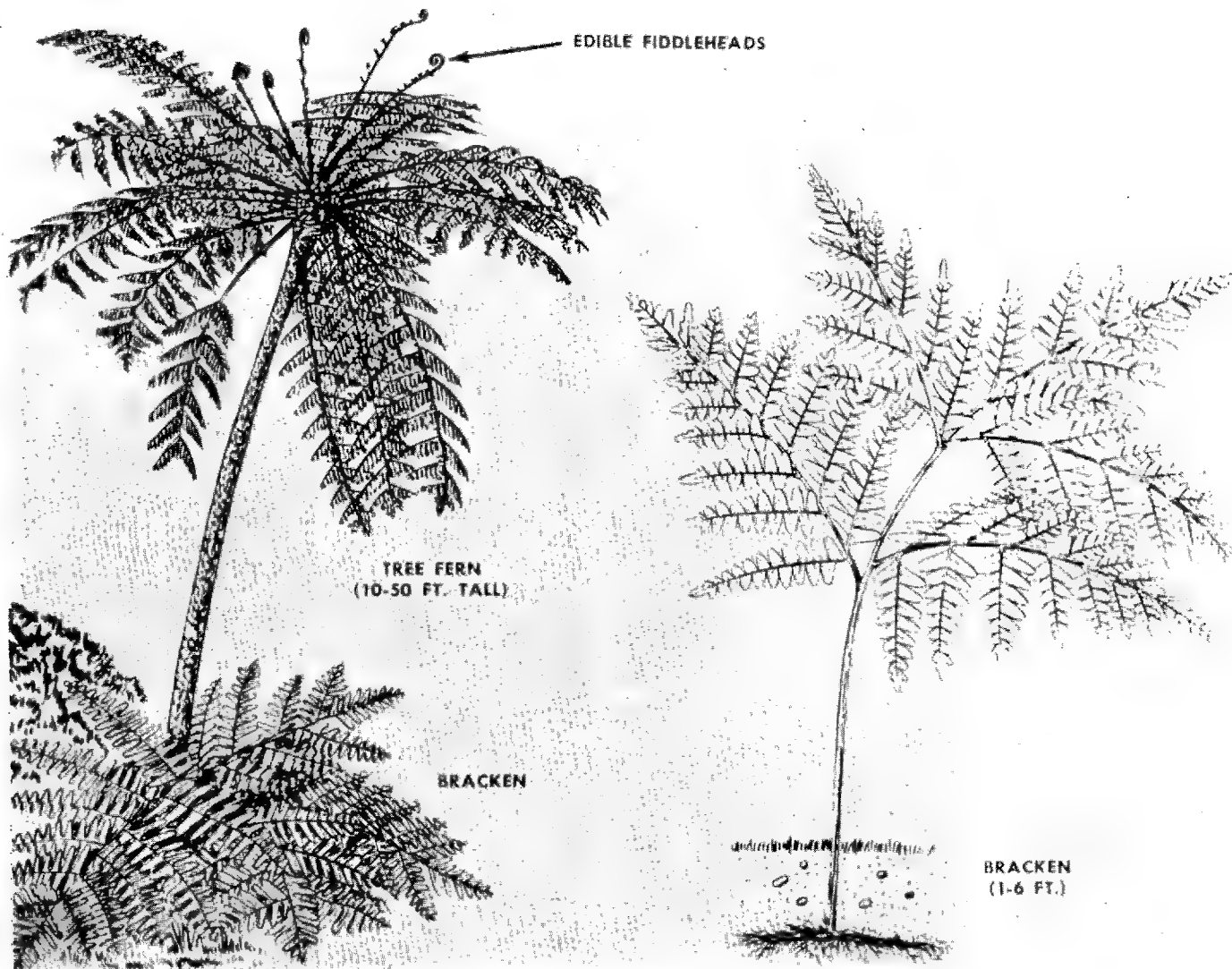


Figure 175. Edible ferns. Ferns are common in Eastern Indonesia in forested regions, in gullies, along streams, and on the edges of woods. Ferns might easily be mistaken for flowering plants, but the bottom surface of fern leaves is usually covered with masses of brown dots, which themselves are covered with yellow, brown, or black dust. These dots are actually filled with spores and the presence of these spore structures easily distinguishes ferns from plants with flowers. No one who is not certain that he knows a true fern from other delicately cut leaves should venture to eat the smaller kinds of ferns. Many poisonous plants have delicately cut leaves that resemble ferns.

Young stalks should be drawn through the hand to remove the wool. They will become tender after being boiled in salt water or steamed for thirty minutes to an hour. Older stalks are edible, but retain an unpleasant sticky quality.

S-E-C-R-E-T

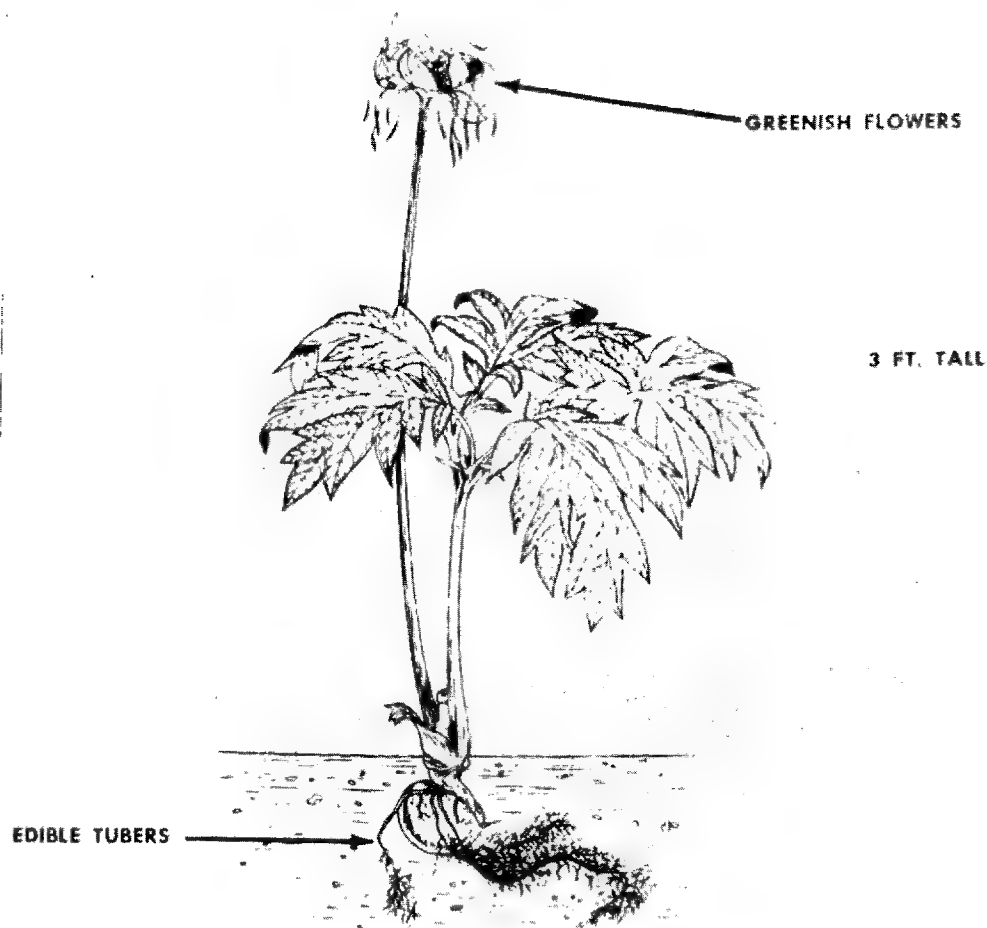


Figure 176. East Indian arrowroot. The East Indian arrowroot grows wild in forested areas of Eastern Indonesia that have high rainfall. It is also cultivated and may be found in gardens, in abandoned fields, and in wet places along roadsides. The edible tubers are very bitter when raw but become sweet when boiled. Flour, useful for making bread or pancakes, can be made from arrowroot. Peel, wash, and dry fresh tubers and rasp the tubers directly into a container of water. Let stand until the milky water becomes clear again. Pour off the water and save the white starch. Repeat the washing process several times to remove the bitterness from the starch. After thorough washing it should be dried in the sun.

S-E-C-R-E-T

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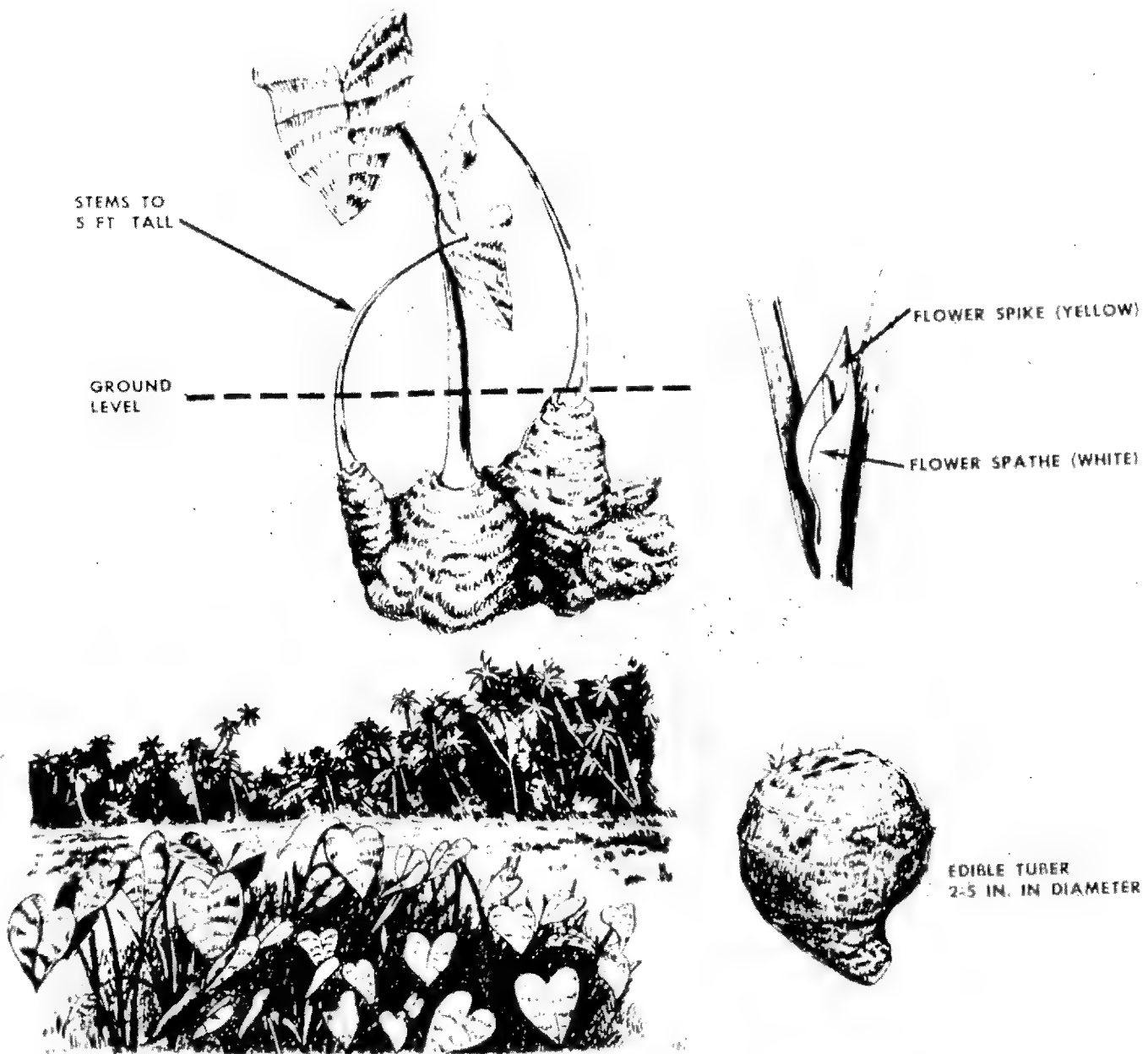


Figure 177. Taro. Taro grows in moist, forested regions, but may also be found near abandoned villages, along streams, and in ditches. The tubers can be boiled to destroy very irritating crystals, and then eaten like potatoes. Young leaves also must be boiled; they make a good substitute for spinach.

S-E-C-R-E-T

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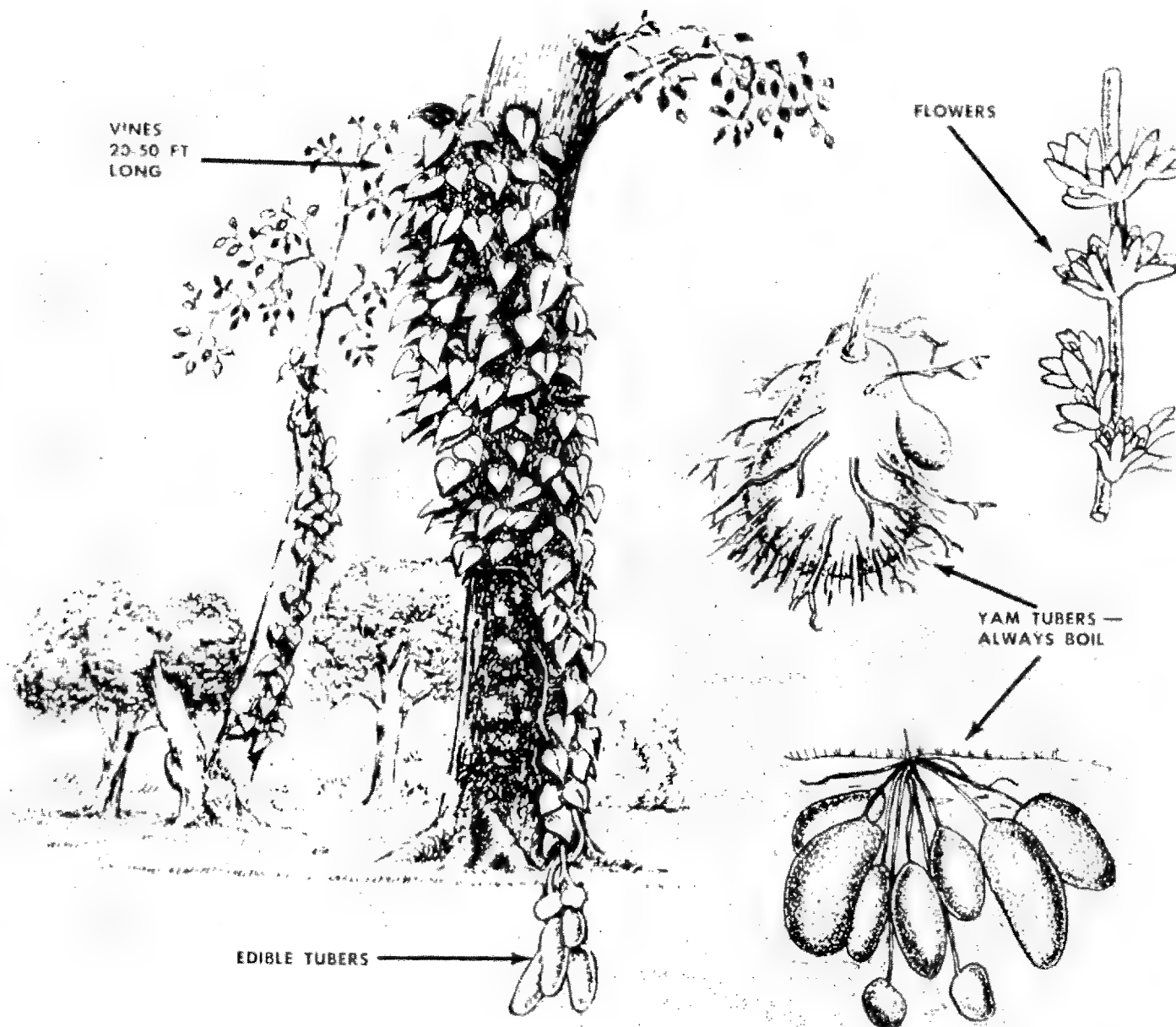


Figure 178. Tropical yam. Several varieties of tropical yams grow in Eastern Indonesia in abandoned gardens, in clearings in forested areas, and in forests that are not too dense. All kinds must be cooked prior to eating because of the irritating properties in the raw tuber.

S-E-C-R-E-T

S-E-C-R-E-T

are important subsistence crops in West New Guinea. It is usually not advisable to attempt to steal from natives, although their gardens might serve as a source of food in emergencies. Extreme caution should be employed in approaching gardens or fields, preferably after dark and from the downwind side, because dogs and guards are often used to protect crops from predators.

In general, it is safe to try plant foods that are eaten by birds and mammals, as food eaten by rodents, monkeys, baboons, and other omnivorous animals is usually edible by humans. Anything with an unusually bitter or otherwise disagreeable taste may be harmful, and unknown plants with milky juices should be avoided entirely. Large quantities of a strange plant food should never be eaten without testing it first by eating a small portion. A small quantity of a poisonous food is not likely to prove fatal or even dangerous.

2. Animals

Crustaceans, mollusks, turtles, and fish are among the best sources of food, because they are easy to catch and are generally abundant. Most crustaceans, mollusks, and turtles can be caught by hand. Fish can be caught with the fishing equipment in standard survival kits, with improvised equipment, or by spreading poison on the water. Fishhooks can be made from pins, needles, wire, wood, or bone; lines can be fashioned from bark, roots, or the leaf and stem fibers of various trees and plants; spears can be made from bamboo or saplings. Poison can be obtained by crushing any of several types of plants (notably the tuba) that are not harmful to man. Lime, obtainable by burning coral or seashells, will yield a similar poison.

Insects are an abundant source of emergency survival food for the psychologically prepared traveler in Eastern Indonesia. Grasshoppers, termites, and the larvae of many insects (usually found in rotten logs, in the ground, and under the bark of dead trees) are edible and are quite nourishing. Caterpillars should not be eaten because many are irritating and some are poisonous.

Birds, mammals, and large reptiles (including snakes) are edible but are not easily caught. Most of the animals of Eastern Indonesia are more active at night than during the day. The best places to set traps or to hunt for birds and mammals are at the edges of forests, along trails, in forest openings, and along streams and ocean shores. It is best to cook all animal food thoroughly before eating, because many animals carry dangerous intestinal parasites. The venom

S-E-C-R-E-T

S-E-C-R-E-T

sacs of poisonous snakes constitute a risk that can be avoided by simply eliminating the head.

Honey and the eggs of birds and turtles can occasionally be found. Many small animals cache fruits, nuts, seeds, and roots under rocks, in hollow logs, and in similar hiding places that are accessible to a diligent searcher.

3. Water

Water is generally available in Eastern Indonesia, although it becomes scarce in the Eastern Lesser Sundas and southern Moluccas during the southeast monsoon (May through October). Extreme care should be exercised in obtaining drinking water; all water should be regarded as contaminated. Dysentery, cholera, and typhoid are the commonest water-borne diseases; blood flukes and various types of worms also are transmitted through drinking water.

If surface water is the only water available, it is best to take it from sites as far upriver from human habitation as possible. The most dangerous sources are slow-moving bodies of water downriver from native villages. Surface water should be purified by using chemical purifiers or by boiling for 20 minutes.

Sometimes it is practical to dig for water, especially in low spots where drainage from the surrounding land tends to concentrate or near the coast where the water table is close to the surface. In digging for water near the sea-shore, fresh water will be found first because it is lighter than salt water. This water may be brackish, but its salt content is not high enough to be harmful. Elsewhere, it is generally best to dig for water where the vegetation appears to be greener or markedly different from surrounding types, where the sand appears damp in dry riverbeds, or in other low areas.

The movements of birds and animals are often clues to the presence of water. Most birds fly to water at least once a day. Pigeons and parrots usually feed in dry areas but fly to water in the late morning and afternoon. At the beginning of their evening flight, bats always fly to some place where water is available. Game trails generally lead to water.

Various plants are sources of water. The leaves, stems, and roots of many succulent plants and the stems of many vines,

S-E-C-R-E-T

S-E-C-R-E-T

climbing rattans, young banana plants, and bamboo contain water. Vines should be cut into 2-foot or 3-foot lengths and allowed to drip (see Figure 179). Water can be drained from large bamboo shafts by cutting into each segment just above the joint. The flower stalks of palms contain a drinkable sugary sap, and the green nuts of the coconut palm yield a fluid that can be drunk in quantity without harmful effect. The milk of ripened coconuts, however, contains an oil that may cause diarrhea if taken in large quantities. The milk can be drunk without harmful effects by allowing it to stand; the oil will separate and can be drained off. Many plants catch and store rainwater in natural receptacles, such as their leaves. Water also may be obtained by chewing the fruits, growing tips, leaves, stems, and buds of many plants.

B. Environmental Hazards

1. Large Animals

Few potentially dangerous large animals are native to Eastern Indonesia. Water buffalo are not found east of Sumbawa, and tigers are found only on Bali. Smaller animals, such as deer, wild pigs, and monkeys -- essentially not dangerous to humans -- are much more common than large animals. There is always a remote possibility of encountering a rabid animal, but in general, animals are not a significant environmental hazard.

2. Reptiles and Fish

Reptiles are plentiful in Eastern Indonesia and some constitute a real source of danger. Poisonous snakes are not as numerous as nonpoisonous species, but all snakes should be regarded as dangerous, especially those found swimming in coastal waters, and caution should be exercised in order to minimize the possibility of snakebite. It is wise to form the habit of stepping and placing one's hands with great care and of hanging clothing and equipment on tree limbs rather than letting them lie on the ground. Sleeping in a hammock or on an improvised sleeping platform is a much safer practice than sleeping on the ground.

Crocodiles are found in coastal swamps, inlets, and tidal rivers throughout Eastern Indonesia. They are very dangerous and should be avoided. Although the monitor lizard of Komodo and Rintja Islands may attain a length of 10 feet and weigh up to 300 pounds, none of the lizards of Eastern Indonesia constitute a real danger to man.

S-E-C-R-E-T



Figure 179. Obtaining water from a tropical vine. A deep notch is cut in the vine as high above the ground as can be reached. The vine is then cut close to the ground. When water stops dripping from the lower end, another section can be cut off the top and more water will drain out.

S-E-C-R-E-T

S-E-C-R-E-T

The puffer, porcupine, trigger, and parrot fishes have poisonous flesh and should not be eaten (see Figures 180 through 183). Symptoms of fish poisoning, which appear from 1 to 6 hours after eating, include nausea, vomiting, diarrhea, itching, cramps, paralysis, and a metallic taste in the mouth. The handiest antidote for fish poisoning is sea water in quantity sufficient to induce vomiting. Drink sea water to force yourself to vomit as soon as symptoms appear.

The scorpion fish and the stone fish frequent coral reefs, where they may be accidentally stepped on. The flesh of these fish is edible, but they should never be handled with bare hands. They have venomous spines. Stings from these spines usually cause severe pain and swelling, followed by prostration (see Figures 184 and 185).

The stinging sea anemone and spiny sea urchin are also common. Other potentially dangerous or troublesome aquatic animals include barracuda, electric ray, jellyfish, moray and conger eel, shark, and stingray.

3. Insects and Small Animals

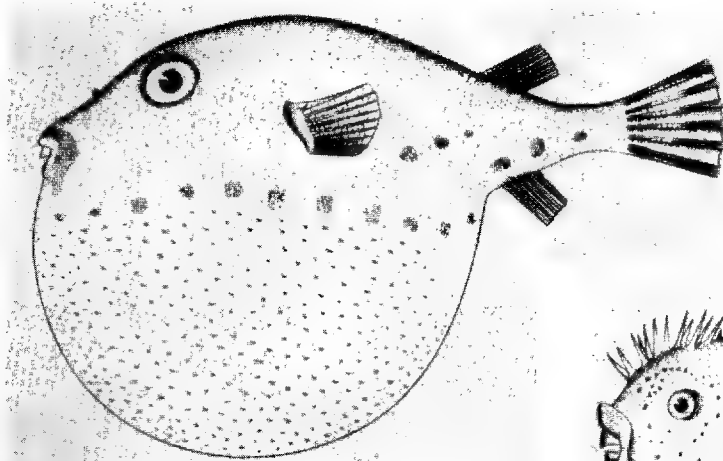
Centipedes, insects, leeches, spiders, and ticks abound in Eastern Indonesia. Most are no more than a nuisance, but some are a serious hazard. Mosquitoes, for instance, transmit malaria, dengue, and filariasis. Malaria-bearing mosquitoes are most prevalent in coastal areas and in poorly drained, sunny, interior lowlands. Smaller numbers of disease-carrying mosquitoes also are found at elevations up to 5,000 feet where they breed in mountain streams. A traveler in mosquito-infested areas should wear suitable clothing and netting to keep exposed skin to a minimum, particularly after sundown, when mosquitoes are most likely to bite.

Flies vary greatly in size and in the discomfort they can cause. Some are vicious biters; the larvae of others infect wounds or even unbroken skin. Near infested villages they may carry communicable diseases and contaminate food. In general, protective measures used against mosquitoes will be effective against flies, although some flies are so small that they can pass through ordinary mosquito netting. Many such pests are limited in range to short distances from their breeding areas and can be avoided by moving out of the infested area.

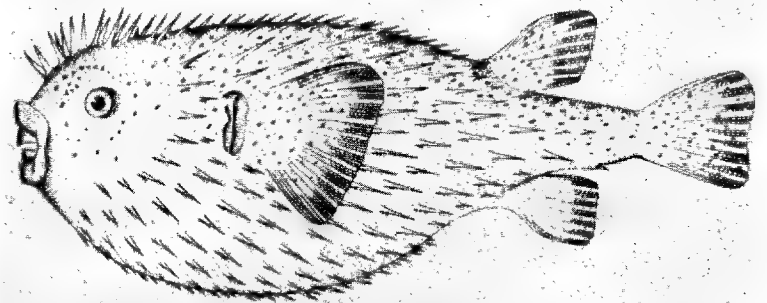
Rats and other rodents are likely to be infested with fleas and lice, which in turn may carry several diseases, including typhus and plague. If it is necessary to eat rats,

S-E-C-R-E-T

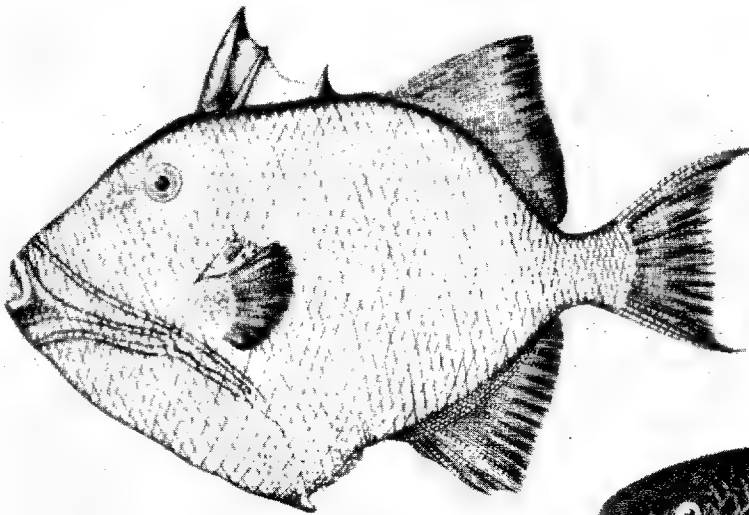
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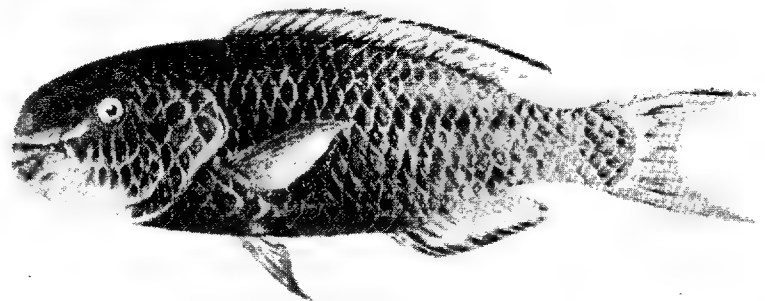
PUFFER FISH
(10-15 IN.)



PORCUPINE FISH
(ABOUT 1 FT.)



TRIGGER FISH
(1-2 FT.)

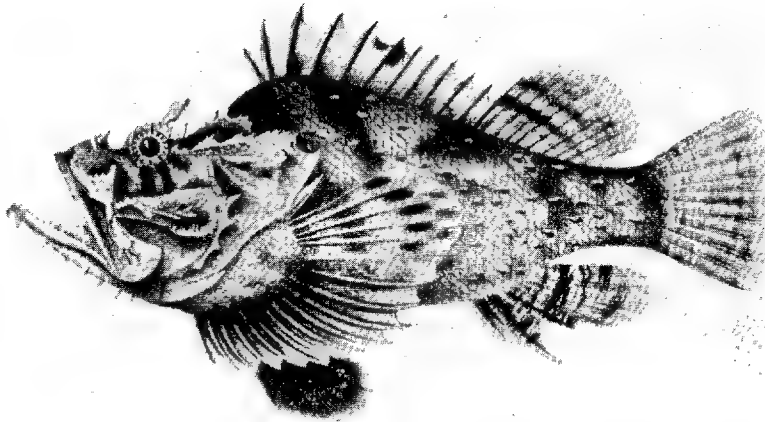


PARROT FISH

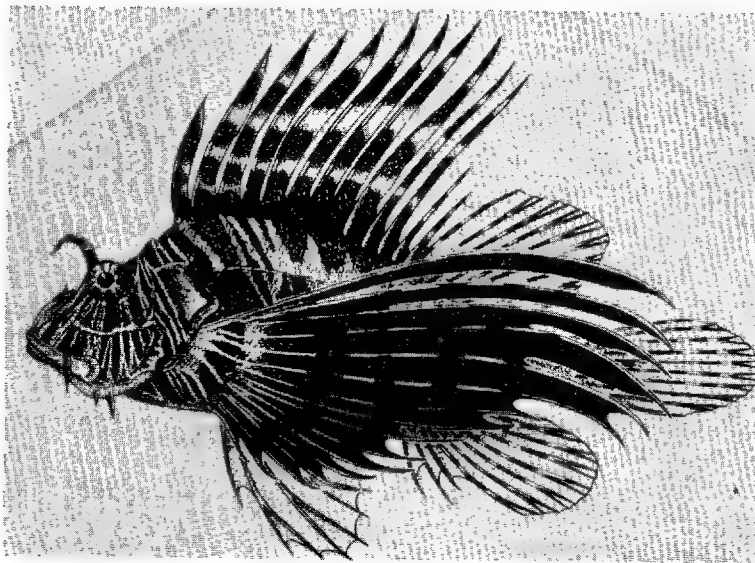
Figures 180-183. Poisonous fish. The flesh of the puffer, porcupine, trigger, and parrot fishes, common to coastal areas, contains a toxic substance that is not removed by cooking.

S-E-C-R-E-T

S-E-C-R-E-T



SCORPION FISH



STONE FISH
(about 15 in.)

Figures 184 & 185. Poisonous fish. The spines of scorpion fish and stone fish can inflict poisonous stings that cause severe pain and swelling.

S-E-C-R-E-T

S-E-C-R-E-T

they should not be handled until cold; fleas quickly leave a dead body. The use of louse powder, exposure of clothing to direct sunlight for a few hours, and frequent washing in hot soapy water are good precautions against lice.

Ticks and mites are carriers of scrub typhus and may cause secondary infections (tropical ulcers) if improperly removed from the skin. They can usually be dislodged by touching them with lighted cigarettes or dehydrating substances such as salt, iodine, alcohol, or dry ashes. If this does not work, a sterile instrument should be used to extract them.

Ants, centipedes, spiders, and wasps are numerous. Although their bites or stings are painful, they are not normally fatal, but care should be taken to avoid secondary infection from such bites.

Bloodsucking land leeches are common in the moist areas of Eastern Indonesia, especially during the rainy season. They cling to vegetation and attach themselves to passersby. It is very difficult to avoid them because of their ability to pass through very small openings -- even through coarse stockings or the eyelets of laced shoes. Although their bites may cause discomfort and a serious loss of blood they generally are painless, and often the leeches are discovered only after a thorough search of the body. In leech-infested country the body should be examined regularly, and leeches should be removed very carefully to avoid secondary infection; they are best removed by applying a burning cigarette or dehydrating substance. The wound may become infected if the leech is pulled off by force.

C. Climatic Hazards

1. Temperature and Humidity

Although the high humidity of tropical lowlands contributes to the rapid growth of fungi and molds that cause rapid deterioration of cloth and leather, it is the constant high temperature that constitutes the greatest climatic hazard in the lowlands of Eastern Indonesia. People tend to perspire freely in most of the area and can easily lose too much salt and ascorbic acid. This loss can be replaced by eating extra amounts of salt and citrus fruit. If salt is not readily available, several swallows of ocean water each day will not be harmful provided enough fresh water also is consumed. In general, it is best to avoid exertion during the hottest hours of the day, as overexertion may result in heat exhaustion and

S-E-C-R-E-T

temporary disability. Failure to wear protective headgear when exposed to the sun may result in sunstroke. Young men in prime physical condition who have an adequate diet usually become acclimatized in 1 or 2 weeks.

The cold windy highlands of West New Guinea are uniquely different from most of Eastern Indonesia and require special precautions. Clothing should consist of a number of light garments that can be taken off and put on to regulate body temperature as required. The control of perspiration is essential; wet clothing conducts heat from the body and helps to lower resistance. Even if one is equipped with windproof outer garments, it is best to take shelter from cold winds to conserve body heat. Dry grass, moss, or feathers placed inside shoes or stockings provide insulation against frost-bite.

2. Precipitation

Most of Eastern Indonesia receives maximum precipitation during the northwest monsoon (December through February), but torrential rains capable of temporarily halting cross-country movement may occur at any time throughout the year. Sleeping accommodations should be adequately insulated against ground moisture and protected against night rains. Campsites should be well above stream level because rapid rises in water levels are common during heavy rains. Fording of streams is hazardous during and immediately after heavy rains.

D. Cultural Factors

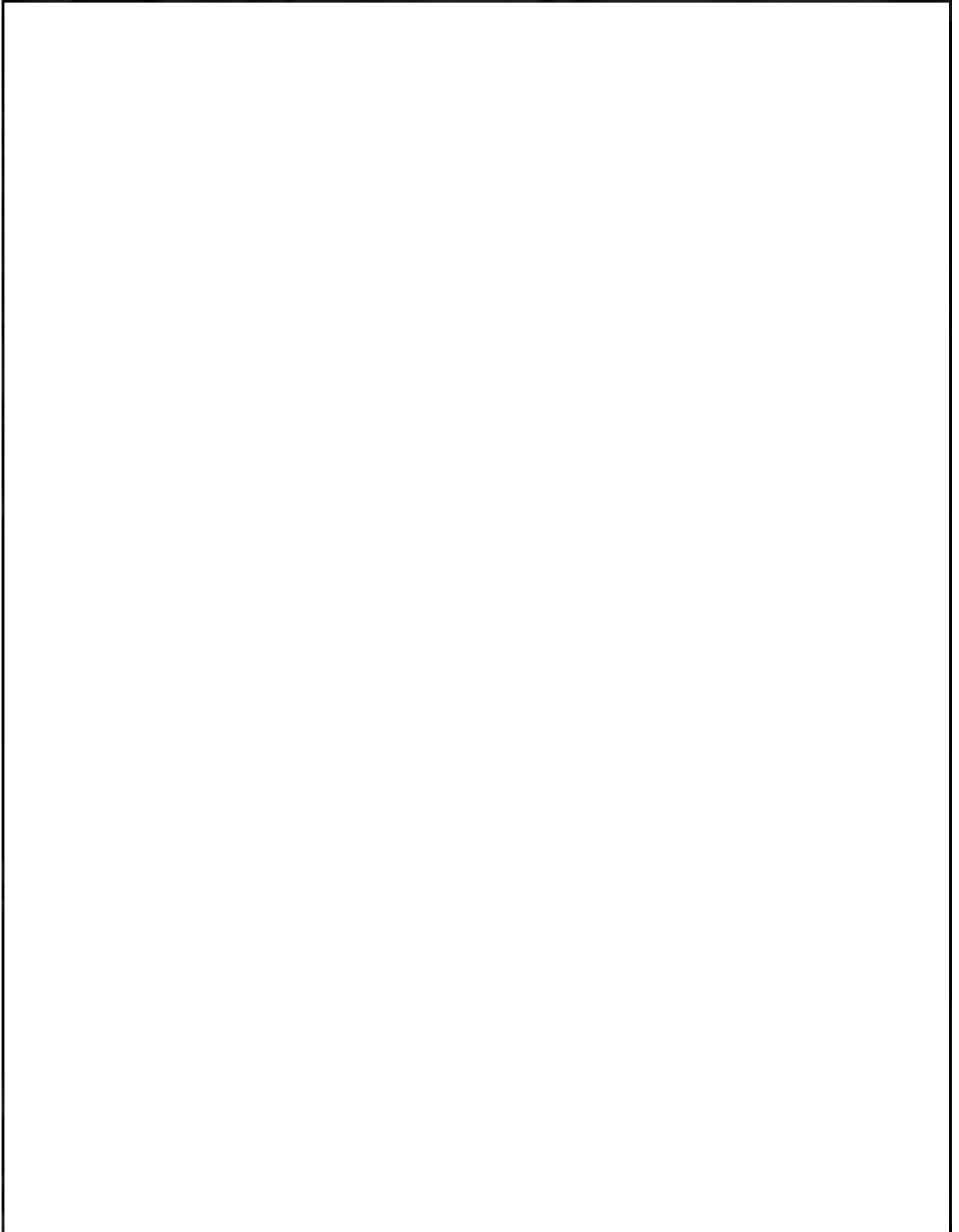
On Celebes and on the islands of the Lesser Sundas and the Moluccas, most of the people live in coastal villages; interior villages are few and far between. Coastal villages also are common in West New Guinea, where they are usually located near river mouths, but most of West New Guinea's population lives in mountain-valley villages of the interior.

25X1

S-E-C-R-E-T

S-E-C-R-E-T

25X1



- 308 -

S-E-C-R-E-T

S-E-C-R-E-T

E. Medical Factors

Very little medical information exists for individual islands of Indonesia east of Java. Therefore, disease problems are estimated largely on the basis of climate, assuming that those diseases prevalent in jungle areas of Java and Sumatra are similarly encountered in other jungle areas in the chain. The most important considerations in small force operations in jungle areas are: personal cleanliness; camp cleanliness; adequate prophylaxis plus competent medical support; and common sense in dealing with natives or native villages which are known to harbor specific diseases.

S-E-C-R-E-T

S-E-C-R-E-T

F. Principal Diseases in Eastern Indonesia

Disease	Carrier	Distribution	Prevention	Treatment	Comment
Smallpox	Infected humans	Fairly wide-spread	Inoculation	None	Inoculation mandatory
Diphtheria		Widespread	Inoculation	Diphtheria antitoxin	Attack rate is usually low, even in susceptible adults
Asian influenza		Widespread during epidemics	Inoculation	Rest and aspirin or APC	Not a major problem unless an epidemic develops
Cerebro-spinal meningitis		Fairly wide-spread	Sulfonamides or penicillin	Sulfonamides, penicillin, and general supportive care	Evacuation of patient to hospital will be required
Trachoma		Widespread	General cleanliness, avoid contact with infected persons	Tetracycline	Commonly seen, particularly in children
Yaws		Widespread	General cleanliness, penicillin if exposed directly	Penicillin	Infects up to 80% of population in some jungle areas

- 310 -

S-E-C-R-E-T

S-E-C-R-E-T

Disease	Carrier	Distribution	Prevention	Treatment	Comment
Tropical ulcers	Infected humans	Widespread	General cleanliness and prompt attention to superficial wounds	Sulfonamides, tetracycline	Bacteria on the skin may infect small unattended wounds producing an ulcer or open sore
Rabies	Wild dogs or other animals	Widespread	Avoid or kill wild dogs that may attack	Thorough washing of wounds and institution of antirabies vaccine course	Patient must be evacuated to hos- pital as soon as possible. Attempt must be made to kill the offending animal and present it for testing so that rabies treat- ment is not carried out unnecessarily
Malaria	Mosquitoes	Widespread	Mosquito netting, mosquito repellent, and chloroquine	Chloroquine diphosphate and primaquine quartan	Most of the malaria is benign tertian and quartan
Filariasis		Widespread	Mosquito repellent	Hetrazan	
Dengue fever		Widespread	Mosquito repellent	Bed rest and aspirin or APC	Also known as 5-day fever and 7-day fever

-311-

S-E-C-R-E-T

S-E-C-R-E-T

Disease	Carrier	Distribution	Prevention	Treatment	Comment
Amebic dysentery	Unclean food, water and soil	Widespread	Clean food and water	Diodoquin, terramycin	Very pre-valent
Bacillary dysentery		Widespread	Clean food and water; sulfadiazine if exposed	Aureomycin or sulfadiazine	Very pre-valent
Typhoid and paratyphoid fevers		Widespread	Inoculation	Chloromycetin	Very pre-valent
Cholera		Uncommon	Inoculation	Tetracycline and chloramphenicol	
Infectious hepatitis		Recently became widespread	Clean food and water; avoid contact with infected persons or villages; gamma globulin inoculation	General supportive care; proper diet; complete rest	Gamma globulin will produce a high degree of immunity for about 2 months
Hookworm		Widespread	Wear shoes; clean food and water	Tetrachloroethylene or piperazine	Very pre-valent
Tetanus		Widespread	Inoculation	None	Very pre-valent in the Lesser Sundas

S-E-C-R-E-T

Disease	Carrier	Distribution	Prevention	Treatment	Comment
Plague	Mites, fleas, and flies	Rare	Inoculation	Streptomycin	Appears sporadically, carried by the rat flea
Typhus			DDT powder in clothing	Chloramphenicol	Carried by mites
Visceral leishmaniasis		Rare	Fly repellent	Neostibosan	Also known as kala azar

- 313 -

S-E-C-R-E-T

S-E-C-R-E-T

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S-E-C-R-E-T

S-E-C-R-E-T

APPENDIX A

MAJOR AIRFIELDS - EASTERN INDONESIA

Airfield	Airfield Coordinates	Date of Latest Info	Probable User	Longest Runway (in feet)
Abresso (see Ransiki)				
Amahai	03 20 S - 128 55 E	1963	AURI/Civil	9023 (coral)
Atambua	09 05 S - 124 54 E	1963	AURI	3900 (coral)
Bokondini	03 39 S - 138 40 E	1962	Civil	2000 (grass)
Borokoe	01 10 S - 136 05 E	1964	AURI	6890 (hard surface)
Bula	03 06 S - 130 29 E	1962	AURI	4000 (coral)
Djailolo	01 07 N - 127 29 E	1963	Unknown	3609 (grass)
Dobo	05 46 S - 134 13 E	1962	Civil/AURI	3500 (coral)
Doka Barat	06 35 S - 134 15 E	1962	AURI	4300 (earth)
Enarotali	03 55 S - 136 33 E	1963	Private	2133 (macadam)
Faan	05 42 S - 132 43 E	1962	Possibly abandoned	4600 (coral)
Genjem	02 36 S - 140 10 E	1962	Civil	3871 (grass)
Haruku	03 31 S - 128 27 E	1962	Unknown	4500 (coral)
Hasanuddin	05 04 S - 119 33 E	1964	Civil/AURI	5735 (asphalt)
Hollandia (see Sukarnapura)				
Ilu	03 45 S - 138 05 E	1962	Civil	2300 (dirt)
Jefman	00 56 S - 131 07 E	1963	Civil/ Military	4921 (concrete)

-315-

S-E-C-R-E-T

-316-

S-E-C-R-E-T

S-E-C-R-E-T

<u>Airfield</u>	<u>Airfield Coordinates</u> ° , ' , ''	<u>Date of Latest Info</u>	<u>Probable User</u>	<u>Longest Runway</u>
Mau-Hau	09 40 S - 120 18 E	1964	Civil	4921 (coral)
Merauke	08 31 S - 140 25 E	1964	Civil	5825 (steel plank)
Middleburg	00 22 S - 132 11 E	1962	Unknown	5400 (steel plank)
Mokmer	01 11 S - 136 06 E	1963	Civil/AURI	11715 (hard surface)
Mopah (see Merauke)				
Nabire	03 22 S - 135 30 E	1963	Military/ Mission	3986 (sand)
Namlea	03 14 S - 127 06 E	1964	Military	4500 (coral)
Numfur (see Kornasoren)				
Pattimura	03 42 S - 128 05 E	1964	AURI	6679 (under construction)
Penfui	10 11 S - 123 40 E	1964	AURI/Civil	6480 (coral)
Pitu	02 03 N - 128 19 E	1965	AURI	8230 (asphalt)
Rambang	08 44 S - 116 33 E	1963	Civil	2800 (grass)
Ransiki	01 30 S - 134 10 E	1963	Civil	3770 (grass)
Rembiga	08 34 S - 116 06 E	1964	Civil/AURI	5381 (asphalt)
Rendani (see Manokwari)				
Selaru	08 15 S - 130 50 E	1962	AURI	4500 (earth)
Sentani	02 34 S - 140 31 E	1965	Civil/AURI	5085 (asphalt)
Sukarnapura	02 34 S - 140 29 E	1964	AURI	4183 (paved)

-317-

S-E-C-R-E-T

S-E-C-R-E-T

Airfield	Airfield Coordinates	Date of Latest Info	Probable User	Longest Runway
Sumbawa-Besar	08 30 S - 117°25 E	1965	Civil	4869 (coral)
Tanahmerah	06 05 S - 140 19 E	1963	Civil	3510 (sand)
Tolotio	00 38 N - 122 50 E	1963	Civil/AURI	4577 (gravel)
Tuban	08 45 S - 115 10 E	1964	Civil	5659 (asphalt)
Waghete	04 02 S - 136 18 E	1965	Civil	2789 (earth)
Waioti	08 38 S - 122 15 E	1964	Civil/AURI	4757 (coral)
Wakde	01 56 S - 139 01 E	1963	Unknown	3937 (asphalt)
Wamena	04 04 S - 138 57 E	1963	Civil	4730 (grass)
Wolter Mongonsidi	04 05 S - 122 25 E	1965	AURI	7954 (composite)
MAJOR AIRFIELDS - Portuguese Timor				
Atabai	08 48 S - 125 12 E	1962	Civil	3280 (earth)
Atauro	08 15 S - 125 35 E	1962	Government	3600 (sand)
Baucau	08 29 S - 126 24 E	1964	Civil	8600 (bituminous)
Dili	08 33 S - 125 32 E	1963	Government	3300 (grass)
Fuilororo	08 26 S - 126 59 E	1962	Civil	3267 (grass)
Lautem	08 24 S - 126 51 E	1962	Civil	3930 (earth)
Maliana	08 56 S - 125 14 E	1963	Gov/Civil	4500 (grass)
Ocussi	09 12 S - 124 21 E	1962	Gov/Civil	5000 (grass)
Suai	09 18 S - 125 17 E	1962	Gov/Civil	3600 (grass)
Viqueque	08 53 S - 126 22 E	1962	Government	3610 (earth)

-318-

S-E-C-R-E-T

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - EASTERN INDONESIA

Airfield	Airfield Coordinates	Date of Latest Info	Additional Information
*Abnu-Sibil	04 39 S - 140 35 E	1965	Runway 1500'; suitable for Cessna; mission airstrip
Aboho	06 01 S - 139 16 E	1965	Suitable for Cessna; mission airstrip
*Agats	05 34 S - 138 04 E	1965	Suitable for Cessna; civil airstrip
*Ajawassi	01 12 S - 132 30 E	1965	Runway 1673'; suitable for Cessna; mission airstrip
*Akimuka	04 35 S - 137 39 E	1965	Suitable for Cessna; civil airstrip
Amahai New	03 18 S - 128 58 E	1955	
Amer	04 40 S - 136 12 E	1965	Suitable for Cessna; mission airstrip
*Amgotro	03 28 S - 140 57 E	1964	Runway 1640'; suitable for Cessna; mission airstrip
*Anguruk	04 14 S - 139 24 S	1965	Runway 1370'; suitable for Cessna; mission airstrip
*Arso	02 56 S - 140 47 E	1964	Grass runway 1800'; suitable for Twin Pioneer; civil airstrip
*Atawanop	04 10 S - 136 59 E	1965	Runway 1640'; suitable for Cessna; mission airstrip
Babo	02 32 S - 133 26 E	1962	

Usable airfield less than 2000' in length; those not marked with are sites of air facilities which may or may not have serviceable runways.

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u>	<u>Date of Latest Info</u>	<u>Additional Information</u>
*Bade	07 10 S - 139 34 E	1965	Runway 1960'; suitable for Cessna; civil airstrip
Bapmis	03 50 S - 137 10 E	1965	Suitable for Cessna; mission airstrip
Baroe	04 49 S - 121 41 E	1957	
*Begowre	02 59 S - 140 56 E	1964	Runway 1540'; suitable for Cessna; mission airstrip
Bemes	01 36 S - 133 50 E	1965	Suitable for Cessna; mission airstrip
*Beoga	03 50 S - 137 24 E	1965	Runway 1800'; suitable for Cessna; mission airstrip
*Bidai	03 43 S - 136 39 E	1964	Runway 1600'; suitable for Cessna; mission airstrip
Bima	08 33 S - 118 41 E	1964	
Bi-Vallei	04 47 S - 140 33 E	1965	Runway 1640'; suitable for Cessna; mission airstrip
Bingkalapa	05 34 S - 120 08 E	1951	
*Bodem	02 18 S - 139 05 E	1965	Runway 1968'; civil airstrip
Bolifar	03 12 S - 130 29 E	1953	
Boma	05 59 S - 139 52 E	1965	Suitable for Cessna; mission airstrip

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u> O	<u>Date of Latest Info</u>	<u>Additional Information</u>
Buludowang	05 32 S - 119 29 E	1955	
Buton	05 28 S - 122 37 E	1954	
Cape Darat	08 29 S - 122 29 E	1955	
Cyclops	02 34 S - 140 32 E	1964	
Djonggoa	05 35 S - 119 30 E	1957	
*Dogemani	03 58 S - 136 01 E	1965	Runway 1968'; suitable for Cessna; mission airstrip
Doko Barat Old	06 34 S - 134 17 E	1948	
Dula	05 37 S - 132 47 E	1960	
Duroa	05 33 S - 132 43 E	1960	
East Ninya/Korropun	04 30 S - 139 34 E	1965	Suitable for Cessna; mission airstrip
*Epote	03 59 S - 136 20 E	1965	Runway 1410'; suitable for Cessna; mission airstrip
Feta	06 10 S - 139 20 E	1965	Suitable for Cessna; mission airstrip
Galela	01 52 N - 127 49 E	1960	
Hassam	04 08 S - 139 20 E	1965	Suitable for Cessna; mission airstrip
Hatetabako	01 16 N - 128 06 E	1961	

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

- 321 -

S-E-C-R-E-T

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u> 0 1 0 1 0 1 0 1	<u>Date of Latest Info</u>	<u>Additional Information</u>
*Hetagima	04 10 S - 138 59 E	1965	Runway 1328'; suitable for Cessna; mission airstrip
*Hitlipa	03 46 S - 137 08 E	1965	Suitable for Cessna; mission airstrip
Hollandia/Cyclops (see Cyclops)			
*Homejo	03 44 S - 136 43 E	1965	Runway 1154'; suitable for Cessna; mission airstrip
*Ibele	04 02 S - 138 44 E	1965	Runway 1312'; suitable for Cessna; mission airstrip
*Ilaga	03 59 S - 137 37 E	1965	Runway 1962'; suitable for Cessna; mission airstrip
*Inanwatan	02 08 S - 132 09 E	1964	Runway 1640'; suitable for Twin Pioneer; civil airstrip
*Itorakebo	04 02 S - 136 31 E	1965	Runway 1968'; suitable for Cessna; mission airstrip
Jawsikor	05 36 S - 138 27 E	1965	Suitable for Cessna; mission airstrip
*Jila	04 14 S - 137 37 E	1965	Suitable for Cessna; mission airstrip
Jimbo	03 45 S - 138 05 E	1965	Runway 1450'; suitable for Cessna; mission airstrip
*Kagime	03 43 S - 138 20 E	1965	Runway 1100'; suitable for Cessna; mission airstrip
*Katapaku	03 43 S - 138 30 E	1965	Runway 1690'; suitable for Cessna; mission airstrip

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

-322-

S-E-C-R-E-T

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u> O O O	<u>Date of Latest Info</u>	<u>Additional Information</u>
Kau	01 11 N - 127 53 E	1960	
Kau	01 10 N - 127 53 E	1961	
*Kayaka	03 40 S - 138 37 E	1965	Runway 1312'; suitable for Cessna; mission airstrip
*Kebo	03 50 S - 136 23 E	1965	Runway 1640'; suitable for Cessna; mission airstrip
*Kelila	03 44 S - 138 43 E	1965	Runway 1968'; suitable for Cessna; mission airstrip
*Kepi	06 40 S - 139 23 E	1964	Runway 1600'; suitable for Twin Pioneer; dry-season only; civil airstrip
*Kiwirok	04 45 S - 140 40 E	1965	Runway 1312'; suitable for Cessna; mission airstrip
Koeh	05 49 S - 140 12 E	1965	Suitable for Cessna; mission airstrip
Kolondale	02 00 S - 121 20 E	1954	
Kurik	08 17 S - 140 15 E	1965	Suitable for Cessna; mission airstrip
Labuha	00 39 S - 127 30 E	1962	
Larantuka	08 19 S - 123 01 E	1959	
Lawrence Valley (see Silimo)			
*Lereh	03 09 S - 139 56 E	1965	Runway 1968'; suitable for Twin Pioneer; civil airstrip

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

-323-

S-E-C-R-E-T

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u>	<u>Date of Latest Info</u>	<u>Additional Information</u>
Limbung	05 19 S - 119 28 E	1957	
Lolobata	01 17 N - 128 07 E	1960	
Luwuk	00 56 S - 122 47 E	1958	
Madjene	03 33 S - 118 58 E	1954	
*Mage	03 50 S - 138 32 E	1965	Runway 1476'; suitable for Cessna; mission airstrip
*Magoda	03 59 S - 135 52 E	1965	Runway 1312'; mission airstrip; abandoned 1964
Malimpung	03 44 S - 119 44 E	1957	
*Mamit	03 36 S - 138 21 E	1965	Runway 1312'; suitable for Cessna; mission airstrip
*Masamba	02 35 S - 120 20 E	1957	
*Menjambo	01 07 S - 133 52 E	1964	Runway 1500'; suitable for Cessna; mission airstrip
*Merdai	01 35 S - 133 20 E	1964	Runway 1968'; suitable for Twin Pioneer; civil airstrip
Mid/Mapmduma	04 20 S - 138 28 E	1965	Suitable for Cessna; mission airstrip
*Mindiptanah	05 48 S - 140 42 E	1965	Runway 1540'; civil airstrip
Miti	01 34 N - 128 03 E	1960	

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u>	<u>Date of Latest Info</u>	<u>Additional Information</u>
*Moanamani	03 59 S - 136 05 E	1965	Runway 1800'; grassed earth; suitable for Twin Pioneer; civil airstrip
*Modio	04 03 S - 135 47 E	1965	Runway 1312'; suitable for Cessna; mission airstrip
Moemi	01 35 S - 134 08 E	1945	
Mongosah	02 30 S - 133 06 E	1945	
*Mulia	03 44 S - 137 57 E	1965	Runway 1482'; suitable for Cessna; mission airstrip
Muting	07 18 S - 140 33 E	1965	Suitable for Cessna; mission airstrip
Naltja/Tee Valley	04 20 S - 139 50 E	1965	Suitable for Cessna; mission airstrip
Namber	01 04 S - 134 50 E	1944	
Namlea New (see Namlea Township)			
Namlea Township	03 16 S - 127 06 E	1964	
Natsippa	03 34 S - 128 18 E	1954	
Nawa Point	03 20 S - 140 00 E	1958	
Oba	00 45 N - 127 34 E	1960	
*Obano	03 56 S - 136 15 E	1965	Runway 1914'; suitable for Cessna; mission airstrip

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

- 325 -

S-E-C-R-E-T

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u> o ' . o '	<u>Date of Latest Info</u>	<u>Additional Information</u>
Oebroeb (see Ubrub)			
Oelpau	10 09 S - 123 45 E	1955	
Ogam	03 53 S - 137 28 E	1965	Suitable for Cessna; mission airstrip
*Okaba	08 06 S - 139 42 E	1964	Runway about 2000'
*Oksibil	04 51 S - 140 36 E	1964	Runway about 2000'; grass
Otawiri	02 41 S - 133 00 E	1962	
Owi	01 15 S - 136 13 E	1962	
Palopo	03 01 S - 120 12 E	1957	
*Pass Valley	03 55 S - 138 30 E	1964	Mission airstrip; suitable for Cessna
*Pirimapoean	06 18 S - 138 24 E	1964	Runway 1800'; grass; suitable for Twin Pioneer; civil airstrip
*Pitt River	04 01 S - 138 31 E	1965	Runway 1574'; suitable for Cessna; mission airstrip
Pitu/Wama	02 02 N - 128 19 E	1962	
*Pogapa	03 47 S - 136 50 E	1965	Runway 1112'; suitable for Cessna; mission airstrip
Polewali	03 26 S - 119 21 E	1954	
Pomelaa	04 34 S - 121 30 E	1957	
Prongkoli	04 10 S - 139 20 E	1965	Suitable for Cessna; mission airstrip

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

Airfield	Airfield Coordinates	Date of Latest Info	Additional Information
*Pugima	04 06 S - 139 02 E	1965	Runway 1770'; suitable for Cessna; mission airstrip
*Pyramid	03 55 S - 138 44 E	1965	Runway 1870'; suitable for Cessna; mission airstrip
Reo	08 20 S - 120 30 E	1957	
Sagan	02 40 S - 132 58 E	1962	
Samate	00 58 S - 131 04 E	1957	
*Sarmi	01 52 S - 138 45 E	1964	Runway 1475'; suitable for Cessna; civil airstrip
Sawar	01 56 S - 138 48 E	1945	
Sawoe	10 31 S - 121 48 E	1957	
Seima	04 30 S - 139 05 E	1965	Suitable for Cessna; mission airstrip
*Sengge	02 52 S - 140 57 E	1962	
*Senggen	03 26 S - 140 48 E	1962	Runway 1968'; suitable for Cessna; civil airstrip
*Senok	03 49 S - 137 51 E	1965	Runway 1200'; suitable for Cessna; mission airstrip
*Seroei	01 52 S - 136 14 E	1964	Runway 1475'; suitable for Twin Pioneer; civil airstrip

Sibil (see Oksibil)

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

S-E-C-R-E-T

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u>	<u>Date of Latest Info</u>	<u>Additional Information</u>
Sidate	01 11 N - 124 27 E	1957	
Silimo	04 30 S - 138 05 E	1965	Suitable for Cessna; mission airstrip
*Singaradja	08 07 S - 115 05 E	1964	
*Soereri	01 23 S - 133 52 E	1964	Runway 1640'; suitable for Cessna; mission airstrip
Sorido	01 11 S - 136 04 E	1964	
*Steenkool	02 06 S - 133 31 E	1963	Runway 1886'; suitable for Twin Pioneer; civil airstrip
Swart Valley	03 45 S - 138 30 E	1965	Runway 1690'; suitable for Cessna; mission airstrip
Tagi	03 52 S - 138 52 E	1965	Suitable for Cessna; mission airstrip
Tamako	03 28 N - 125 30 E	1963	
Tanamon	01 02 N - 124 19 E	1945	
*Tangma	04 16 S - 139 02 E	1965	Runway 1640'; suitable for Cessna; mission airstrip
*Teminaboean	01 27 S - 132 01 E	1962	Runway 1886'; suitable for Twin Pioneer; civil airstrip
*Tigi	04 02 S - 136 13 E	1962	
*Timeppa	04 01 S - 135 49 E	1965	Runway 1800'; suitable for Cessna; mission airstrip

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

-328-

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u>	<u>Date of Latest Info</u>	<u>Additional Information</u>
*Timuka	04 47 S - 136 33 E	1965	Runway deteriorated to 1300'; useable by Cessna; civil airstrip
*Tiom	03 56 S - 138 23 E	1965	Runway 1984'; suitable for Cessna; mission airstrip
Tiwora	04 45 S - 122 30 E	1957	
Toli-Toli	01 03 N - 120 50 E	1955	
Tomani	00 41 N - 124 16 E	1945	
*Tulem	03 59 S - 138 52 E	1965	Runway about 2000'; suitable for Cessna; mission airstrip
*Ubrub	03 47 S - 140 51 E	1964	
Waioti East	08 39 S - 122 16 E	1945	
*Waisor	02 45 S - 134 32 E	1963	Runway 1968'; suitable for Twin Pioneer; civil airstrip
Waiwalla	09 24 S - 119 15 E	1945	
Wandawa	04 35 S - 138 13 E	1965	Suitable for Cessna; mission airstrip
*Waren	02 14 S - 136 23 E	1965	Runway 1540'; suitable for Twin Pioneer; civil airstrip
Waren Old	01 37 S - 134 07 E	1945	
*Waris	03 14 S - 140 58 E	1965	Runway 1800'; suitable for Twin Pioneer; civil airstrip

*Usable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

S-E-C-R-E-T

S-E-C-R-E-T

MINOR AIRFIELDS AND AIR FACILITIES SITES - (Continued)

<u>Airfield</u>	<u>Airfield Coordinates</u>	<u>Date of Latest Info</u>	<u>Additional Information</u>
*Warok	03 52 S - 138 51 E	1965	Runway 1410'; suitable for Cessna; mission airstrip
Wholo (see Warok)			
Wisselmeren	03 55 S - 136 21 E	1958	
*Wyee	04 22 S - 139 17 E	1965	Runway 1640'; suitable for Cessna; mission airstrip

MINOR AIRFIELDS - PORTUGUESE TIMOR

Cape Chater	08 020 'S - 127 000 'E	1954
Cape Lore	08 40 S - 127 01 E	1953

SEAPLANE STATIONS - EASTERN INDONESIA

<u>Name</u>	<u>Coordinates</u>	<u>Date of Latest Info</u>	<u>Probable User</u>	<u>Operational Dimensions</u>
**Fak Fak	02 056 'S - 132 018 'E	1962	-	-
Lake Tondano	01 11 N - 124 53 E	1963	Military	24000 x 9000
Makasar	05 08 S - 119 24 E	1964	Civil	18000 x 1500
**Manokwari	00 53 S - 134 06 E	1952	-	-
**Merauke	08 29 S - 140 21 E	1962	-	-
Sorong	00 54 S - 131 14 E	1964	Civil/ Military	30000 x 30000

*Useable airfield less than 2000' in length; those not marked with * are sites of air facilities which may or may not have serviceable runways.

**Negligible supporting facilities.

S-E-C-R-E-T

SEAPLANE STATIONS - PORTUGUESE TIMOR

<u>Name</u>	<u>Coordinates</u>	<u>Date of Latest Info</u>	<u>Probable User</u>	<u>Operational Dimensions</u>
Dili	08 32 S - 125 35 E 0 1 0	1964		30000 x 30000

-331-

S-E-C-R-E-T

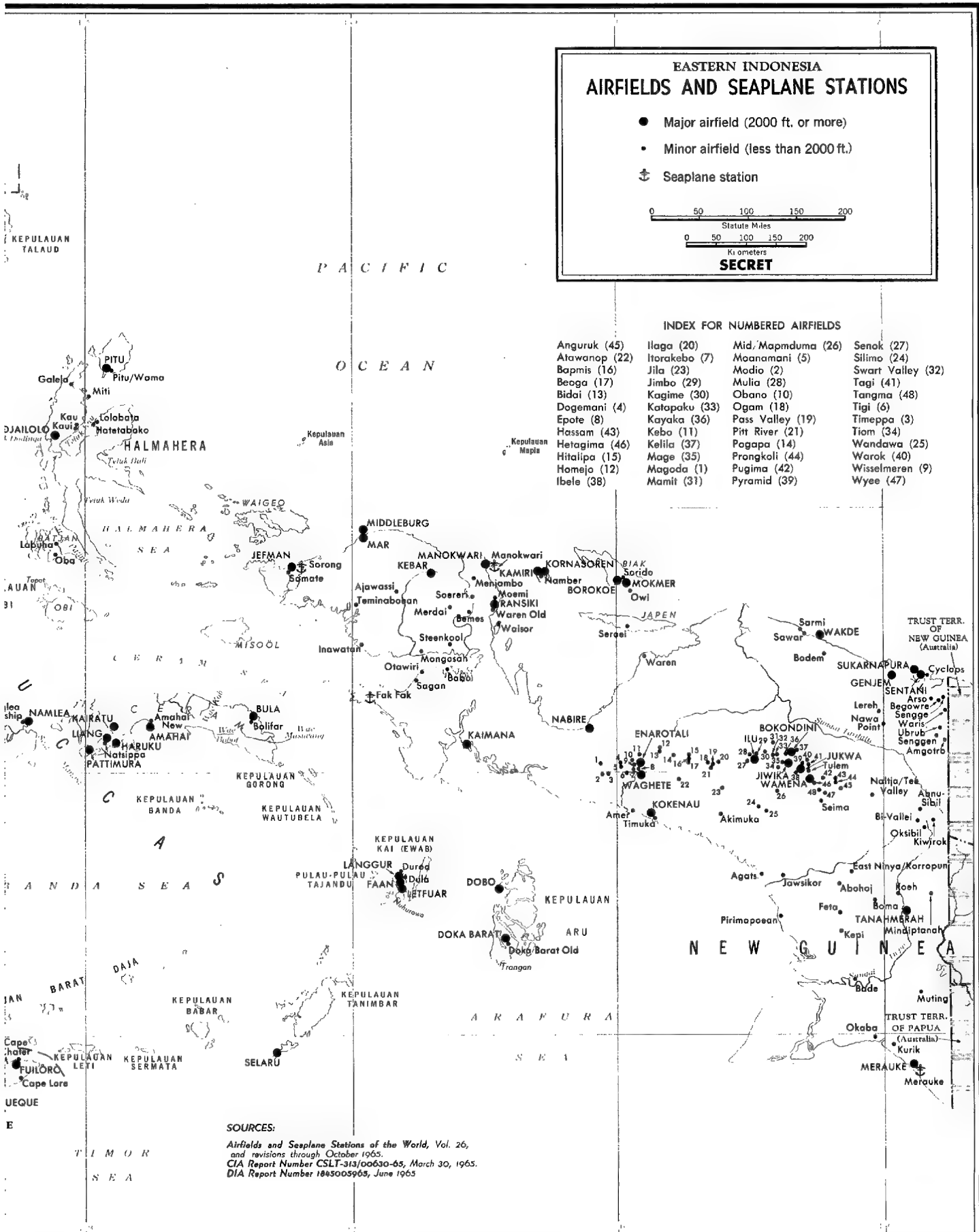
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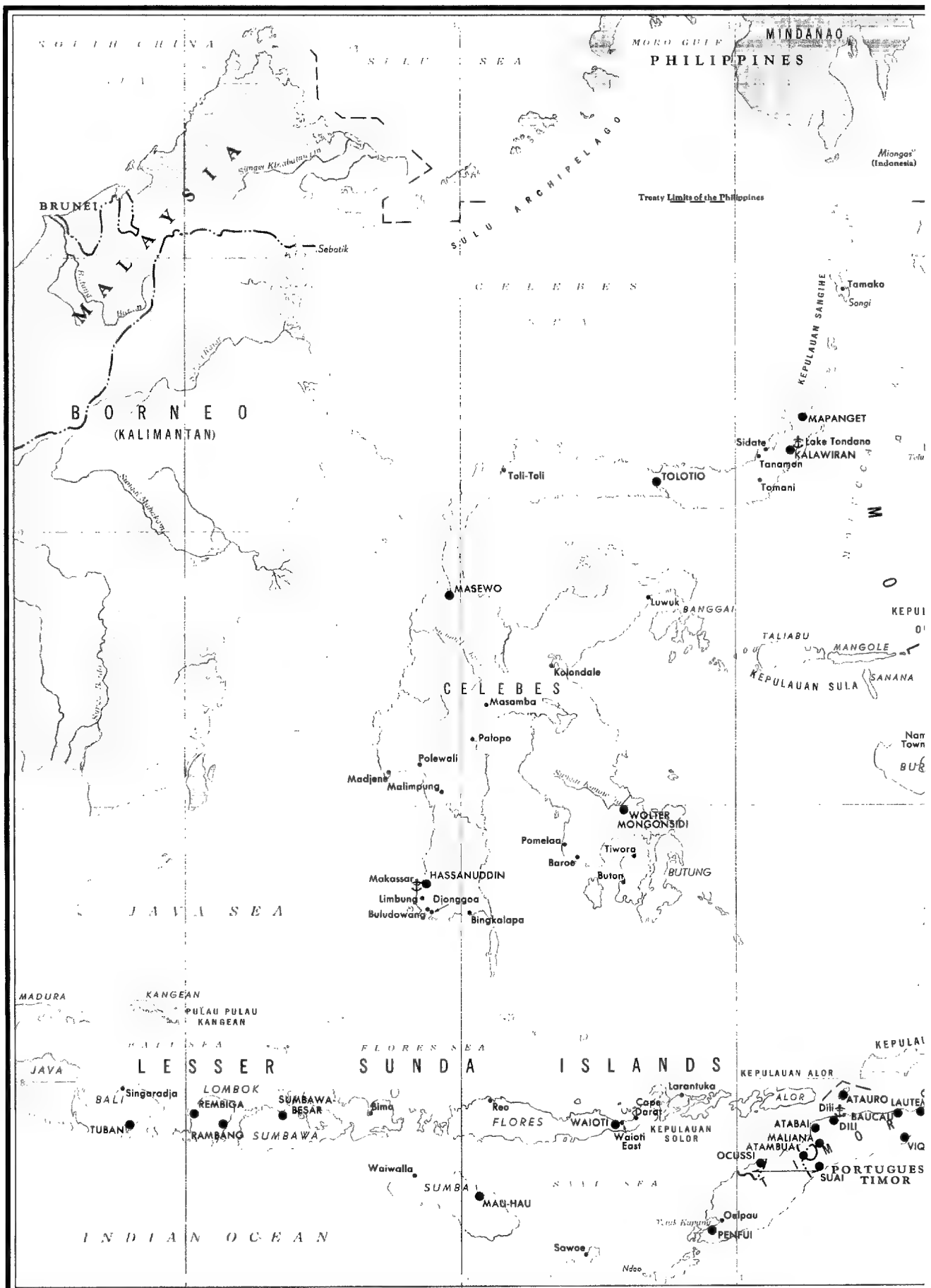


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Approved For Release 2007/03/03 : CIA-RDP80-01444R000100070001-1







S-E-C-R-E-T

APPENDIX B

RECOMMENDED MAPS

Except for the areas covered by the relatively new AMS series at 1:250,000 (T503 and T504: items 3 and 4, below), topographic map coverage for Eastern Indonesia is inadequate in both physical and cultural detail. The International Map of the World (IMW) at 1:1,000,000 provides the largest scale coverage for the entire area. An AMS series at 1:500,000 covers West New Guinea. When combined the two 1:250,000 series cover most of the Lesser Sunda Islands and parts of Celebes, the Moluccas, and West New Guinea. Topographic series at larger scales are out of date, their information is sketchy, and the extent of their coverage is limited. They cover, at various scales, only southwestern Celebes, the Morotai-Halmahera island complex, and the northern coastal area of West New Guinea. All of the series recommended are in English and all are available in quantity at the Army Map Service.

1. Army Map Service, International Map of the World, 1:1,000,000, Series 1301, 1944-61. 17 sheets cover all of Eastern Indonesia.
2. Army Map Service, New Guinea, 1:500,000, Series T401, 1947-65. 20 sheets cover all of West New Guinea as well as Ewab (Kai) and Aru Islands in the Moluccas.
3. Army Map Service, Indonesia, 1:250,000, Series T503, 1962-65. 45 sheets cover all of Lesser Sundas except Lombok, the eastern tip of Bali, and the western two-thirds of Sumbawa; about one-fourth of Celebes; all of the Ambon Islands and most of Ceram; and scattered islands in the southeastern part of the Banda Sea.
4. Army Map Service, New Guinea, 1:250,000, Series T504, 1964-65. 9 sheets cover a small part of the Vogelkop and a small area around Merauke, in the southeast.

S-E-C-R-E-T

S-E-C-R-E-T

APPENDIX B (Continued)

Aeronautical chart coverage of Eastern Indonesia at a scale of 1:1,000,000 is complete and reasonably current (1963-65). In addition, the Aeronautical Chart (AGC) series at 1:250,000 nearly duplicates the coverage of AMS topographic series T503 for the Lesser Sundas and also covers some areas on Celebes and in the Moluccas. The cultural information on the aeronautical charts is the same as that on the topographic series and, because altitudinal tints are used in depiction of terrain, the AGC's may be preferred to the T503 sheets not only for air operations but for other purposes as well.

1. Aeronautical Chart and Information Center, USAF Operational Navigation Chart (ONC).
1:1,000,000, 1963-65. 7 sheets cover Eastern Indonesia.
2. Aeronautical Chart and Information Center, Aeronautical Chart (AGC), 1:250,000, 1964-65.
29 sheets cover small area on Celebes and all of Lesser Sundas except Bali, Lombok, and most of Sumbawa.

S-E-C-R-E-T

S-E-C-R-E-T

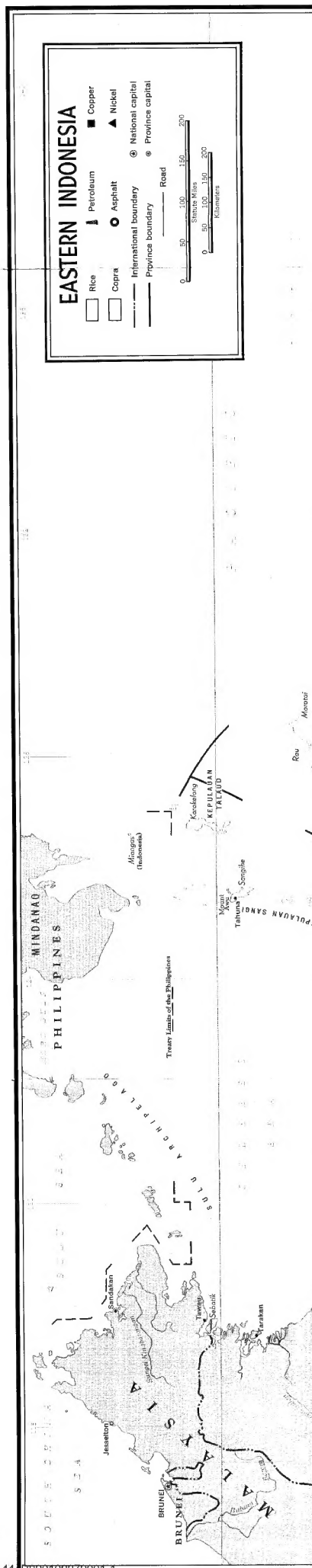
APPENDIX C

RECOMMENDED FILMS

1. An East Indian Island - Bali. Eastman Classroom Film, 1930, 16 millimeter, silent, black and white, 16 minutes. CIA film J6078. U.
2. Bali Today. Encyclopedia Britannica Film, 1951, 16 millimeter, sound, black and white, 11 minutes. CIA film E6398. U.
3. The Sky Above, The Mud Below. Embassy Pictures, 1962, 16 millimeter, sound, color, 105 minutes. CIA film R6825. OUO.
4. Shadow of Shangri-La. Christian and Missionary Alliance, 1957, 16 millimeter, sound, color, 34 minutes. CIA film L6933. OUO.
5. Primitive Paradise. Lewis Cotlow, 1961, 16 millimeter, sound, color, 73 minutes. CIA film R6144. OUO.

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